Ohio Environmental Protection Agency

Division of Surface Water

Application for Authorization
Class B Biosolids Beneficial Use Sites

MOQ-09-01 to 06

Division of Surface Water
Application for Authorization
Class B Beneficial Use Sites

Form BUA-1

Biosolids Treatment Works Information

Treatment works name: Ringler Energy, LLC		
Ohio NPDES permit #: 4IN00204*AD		County: Morrow
Mailing address: 2881 County Road 156		
City: Cardington	State: OH	Zip: 4315
Operator of record: Bruce Bailey, Vice President of Technical Affairs		
Telephone number: 216-986-9999		
Email address (if available): bbailey@quasareg.com		

Certification Statement

1. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

2. I have read and understand Chapter 3745-40 of the Ohio Administrative Code (OAC) and I agree to beneficially use biosolids in accordance with all applicable beneficial use requirements and restrictions established in Chapter 3745-40 of the Ohio Administrative Code.

3. I agree to only beneficially use biosolids that have satisfied a pathogen reduction alternative and a vector attraction reduction option and have metals concentration below the pollutant ceiling concentrations as established in Chapter 3745-40 of the Ohio Administrative Code.

4. I agree to maintain all applicable records established in Chapter 3745-40 of the Ohio Administrative Code.

Signature _____ 11 Date _____/ 7 /_____ 14

quasar energy group

Form BUA-2

Owner Consent for Beneficial Use

Beneficial use site owner: Parsons Family Farms LLP		
Mailing address: 2037 CR 166		
City: Ashley	State: Oh	Zip: 43003
Telephone number: 419-295-3680		
Email address (if available): N/A		

Certification Statement

1. I agree to allow biosolids generated by the treatment plant identified on Form BUA-1 to be beneficially used on my property at agronomic rates.

2. I agree to allow federal, state and local regulatory staff access to the beneficial use site for the purposes of inspecting and authorizing the beneficial use site, beneficially using biosolids, and collecting and analyzing samples from the beneficial use site. I reserve the right to ask the above parties for proper identification at any time.

3. I certify that I am holder of legal title to the property described on application form BUA-4, or am authorized by the holder to give consent for the land application of biosolids, and that there are no restrictions to the granting of consent under this form.

Kayple Parsons bm, 11/2/14
Signature Date

In the event the owner of the beneficial use site changes, Form BUA-2 must be revised and resubmitted to Ohio EPA.

quasar energy group
7624 Riverview Road
Cleveland, OH 44141
(216) 986-9999
www.quasarenergygroup.com

quasar energy group

Form BUA-3

Beneficial Use Site Operator Consent for Beneficial Use

Beneficial use site operator: Parsons Family Farms LLP		
Mailing address: 2037 CR 166		
City: Ashley	State: Ohio	Zip: 43003
Telephone number: 419-295-3680		
Email address (if available): N/A		

Certification Statement

I agree to be responsible for complying with all applicable beneficial use requirements established in Chapter 3745-40 of the Ohio Administrative Code.

Layole Parsons CM — Signature

11 / 2 / 14 — Date

In the event the operator of the beneficial use site changes, Form BUA-3 must be revised and resubmitted to Ohio EPA.

Beneficial User Information

Beneficial user: Ringler Energy, LLC		
Contact person: Bruce Bailey, VP of Technical Affairs		
Mailing address: 5755 Granger Rd. Suite 320		
City: Independence	State: Ohio	Zip: 44131
Telephone number: (216) 986-9999		

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Division of Surface Water
Application for Authorization
Class B Beneficial Use Sites

Form BUA-4 Page 1 of 2

Beneficial Use Site Information

Ohio EPA Site I.D. (Ohio EPA Use Only)

Field site I.D.: MOQ-09-01	
Beneficial use site location: 0.7 miles E of Reader Rd., 0.3 miles N of Waldo Fulton Rd.	
County: Morrow	Township: Lincoln
Latitude: 40°27'16.64"N	Longitude: 82°51'34.93"W

Total acreage proposed for beneficial use: 14.0	
Soil pH (s.u.): 6.5	Soil phosphorus (mg/kg): 11 Bray Kurtz P1 ■ Mehlich 3 □
Bedrock depth (feet): >3ft	

Type of crops to be grown:

Crop Type	Expected Yield
Corn	185 bu
Soybeans	60 bu
Wheat	
Pasture	
Hay	
Other:	

Soil Types:

Soil Unit Symbol	Soil Unit Name	Hydrologic Soil Group
Ble1A1	Bount silt loam, end moraine, 0 to 2 percent slopes	D
Gwe5B2	Glynwood clay loam, end moraine, 2 to 6 percent slopes, eroded	D
Pm	Pewamo silty clay loam	C/D

Are any endangered species or endangered species habitats located on the beneficial use site?

☐ Yes	■ No

If "Yes" is marked, list the types of endangered species or endangered species habitat:

Have biosolids been beneficially used on the site since July 20, 1993?

☐ Yes	■ No

If "Yes" is marked, list the biosolids generators and years beneficial use occurred:

Generator	Year of Beneficial Use

The application must also include all of the following.

- ■ A soil map of the proposed beneficial use site.
- ■ An aerial map of the proposed beneficial use site that clearly identifies the entrance of the beneficial use site from the nearest road and all applicable isolation distances as established in Chapter 3745-40 of the Ohio Administrative Code.
- ■ A vicinity road map at or near the township level that clearly identifies the proposed beneficial use site with all roads labeled.
- ■ A copy of the most recent soil test results identified in this form.

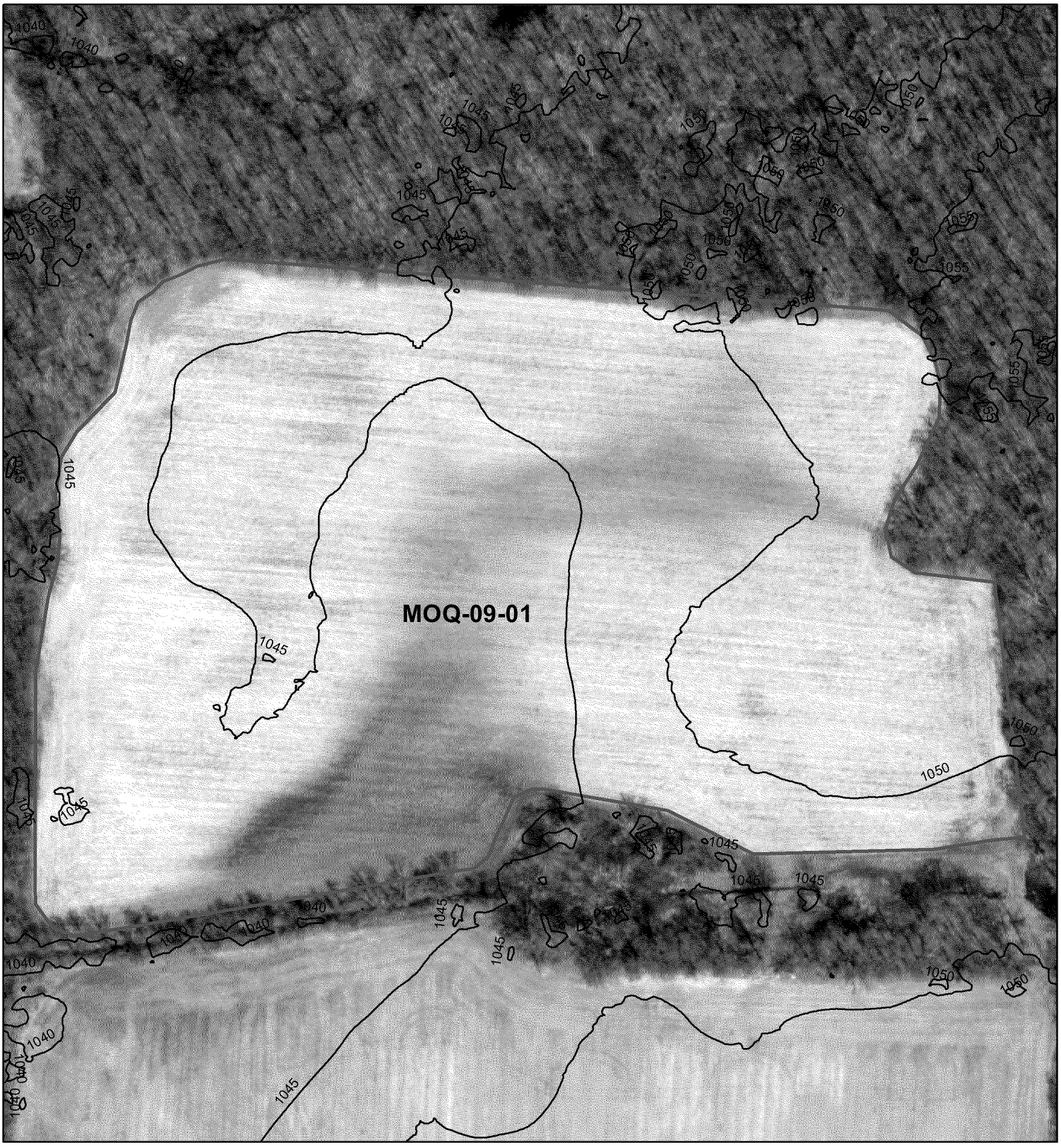
Parsons MOQ-09-01
Total Acreage: 14.0 acres

ED_014244_00001029-00009

quasar energy group

Parsons MOQ-09-01
Total Acreage: 14.0 acres

N



0 75 150 300 Feet

5ft Contours

ED_014244_00001029-00010

Custom Soil Resource Report
Soil Map

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Morrow County, Ohio
Survey Area Data: Version 13, Sep 19, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 5, 2011—Mar 10, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Morrow County, Ohio (OH117)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
Ble1A1	Blount silt loam, end moraine, 0 to 2 percent slopes	1.6	10.8%
Gwe5B2	Glynwood clay loam, end moraine, 2 to 6 percent slopes, eroded	12.3	83.2%
Pm	Pewamo silty clay loam	0.9	6.0%
Totals for Area of Interest		**14.7**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments

Morrow County, Ohio

Ble1A1—Blount silt loam, end moraine, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2s1j4
Elevation: 700 to 1,300 feet
Mean annual precipitation: 34 to 42 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 140 to 180 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Blount, end moraine, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Blount, End Moraine

Setting

Landform: End moraines on till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Wisconsin till derived from limestone and shale

Typical profile

Ap - 0 to 10 inches: silt loam
Bt - 10 to 33 inches: silty clay
BC - 33 to 39 inches: clay loam
Cd - 39 to 79 inches: clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 30 to 60 inches to densic material
Natural drainage class: Somewhat poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.20 in/hr)
Depth to water table: About 6 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 35 percent
Salinity, maximum in profile: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: D

Minor Components

Glynwood, end moraine

Percent of map unit: 9 percent

Landform: End moraines on till plains
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex

Pewamo, end moraine

Percent of map unit: 6 percent
Landform: End moraines on till plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave

Gwe5B2—Glynwood clay loam, end moraine, 2 to 6 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2t6lj
Elevation: 720 to 1,320 feet
Mean annual precipitation: 34 to 42 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 140 to 180 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Glynwood, end moraine, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Glynwood, End Moraine

Setting

Landform: End moraines on till plains
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Linear, convex
Parent material: Wisconsin till derived from limestone and shale

Typical profile

Ap - 0 to 7 inches: clay loam
Bt - 7 to 26 inches: clay
BC - 26 to 30 inches: clay loam
Cd - 30 to 79 inches: clay loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: 24 to 42 inches to densic material
Natural drainage class: Moderately well drained
Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.20 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 35 percent
Salinity, maximum in profile: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 4.3 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: D

Minor Components

Blount, end moraine
Percent of map unit: 9 percent
Landform: End moraines on till plains
Landform position (two-dimensional): Footslope, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear

Pewamo
Percent of map unit: 6 percent
Landform: End moraines on till plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave

Pm—Pewamo silty clay loam

Map Unit Setting
National map unit symbol: 5q8m
Elevation: 600 to 1,400 feet
Mean annual precipitation: 29 to 42 inches
Mean annual air temperature: 46 to 55 degrees F
Frost-free period: 130 to 180 days
Farmland classification: Prime farmland if drained

Map Unit Composition
Pewamo and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pewamo

Setting
Landform: Depressions, drainageways

Parent material: Till

Typical profile

H1 - 0 to 15 inches: silty clay loam
H2 - 15 to 66 inches: silty clay loam
H3 - 66 to 80 inches: clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum in profile: 30 percent
Available water storage in profile: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D

Minor Components

Sloan

Percent of map unit: 3 percent
Landform: Flood plains

Condit

Percent of map unit: 3 percent
Landform: Depressions on ground moraines
Down-slope shape: Concave
Across-slope shape: Concave

Carlisle

Percent of map unit: 3 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave

Bennington

Percent of map unit: 3 percent
Landform: Rises on ground moraines, rises on end moraines, flats on ground moraines, flats on end moraines
Landform position (two-dimensional): Summit, shoulder
Down-slope shape: Linear
Across-slope shape: Linear

Blount

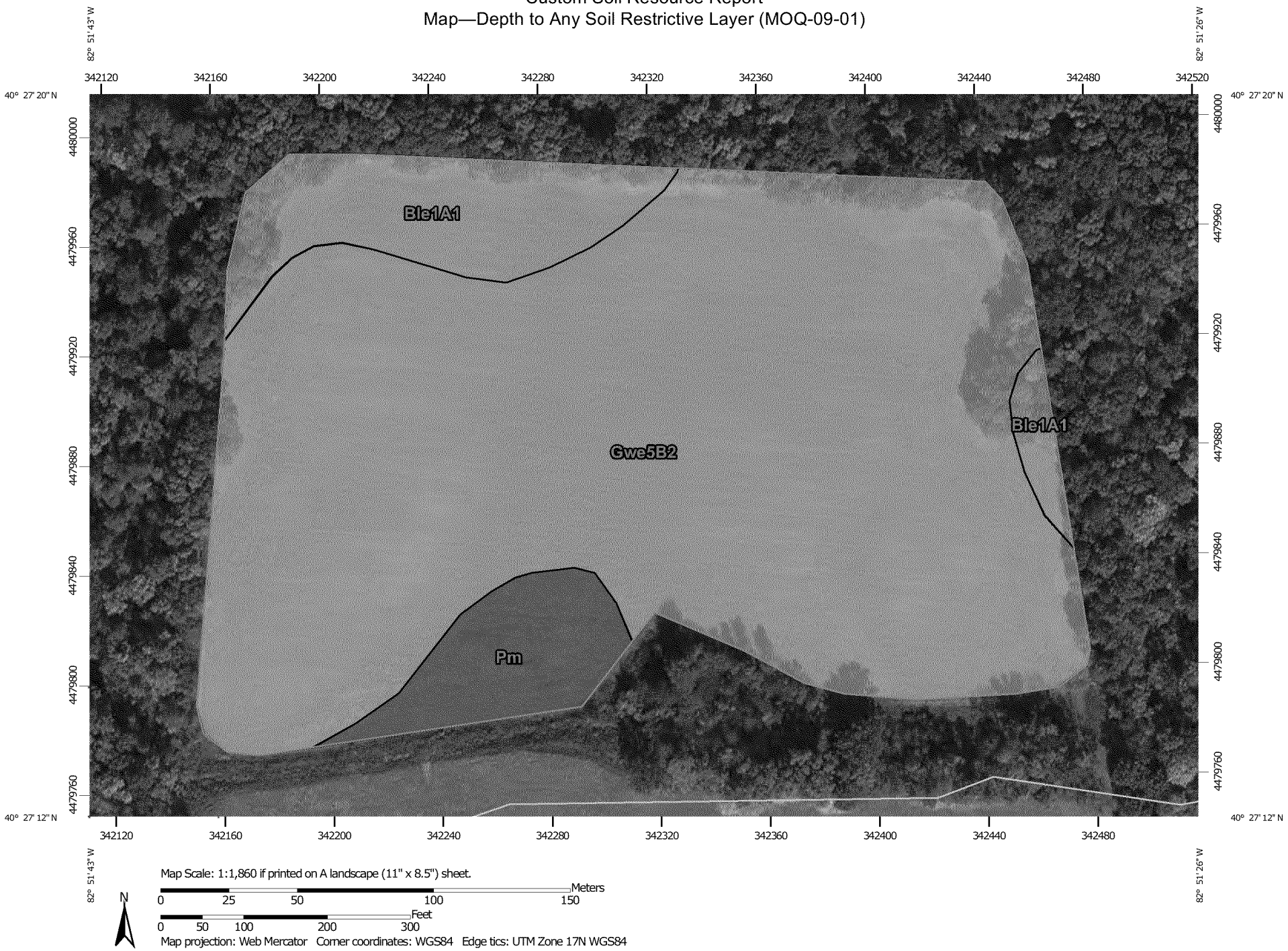
Percent of map unit: 3 percent
Landform: Flats on ground moraines, flats on end moraines, rises on ground moraines, rises on end moraines
Landform position (two-dimensional): Summit, shoulder
Down-slope shape: Linear
Across-slope shape: Linear

More sand and less clay in the subsoil
Percent of map unit:
Landform: Depressions, drainageways

Thinner or lighter colored surface layer
Percent of map unit:
Landform: Depressions, drainageways

Slopes of 3 or 4 percent
Percent of map unit:
Landform: Depressions, drainageways

Custom Soil Resource Report
Map—Depth to Any Soil Restrictive Layer (MOQ-09-01)



MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

0 - 25

25 - 50

50 - 100

100 - 150

150 - 200

> 200

Not rated or not available

Soil Rating Lines

0 - 25

25 - 50

50 - 100

100 - 150

150 - 200

> 200

Not rated or not available

Soil Rating Points

0 - 25

25 - 50

50 - 100

100 - 150

150 - 200

> 200

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

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Soil Survey Area: Morrow County, Ohio
Survey Area Data: Version 13, Sep 19, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 5, 2011—Mar 10, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Depth to Any Soil Restrictive Layer (MOQ-09-01)

Depth to Any Soil Restrictive Layer— Summary by Map Unit — Morrow County, Ohio (OH117)				
Map unit symbol	**Map unit name**	**Rating (centimeters)**	**Acres in AOI**	**Percent of AOI**
Ble1A1	Blount silt loam, end moraine, 0 to 2 percent slopes	99	1.6	10.8%
Gwe5B2	Glynwood clay loam, end moraine, 2 to 6 percent slopes, eroded	76	12.3	83.2%
Pm	Pewamo silty clay loam	>200	0.9	6.0%
Totals for Area of Interest			**14.7**	**100.0%**

Rating Options—Depth to Any Soil Restrictive Layer (MOQ-09-01)

Units of Measure: centimeters

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Interpret Nulls as Zero: No

Hydrologic Soil Group (MOQ-09-01)

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

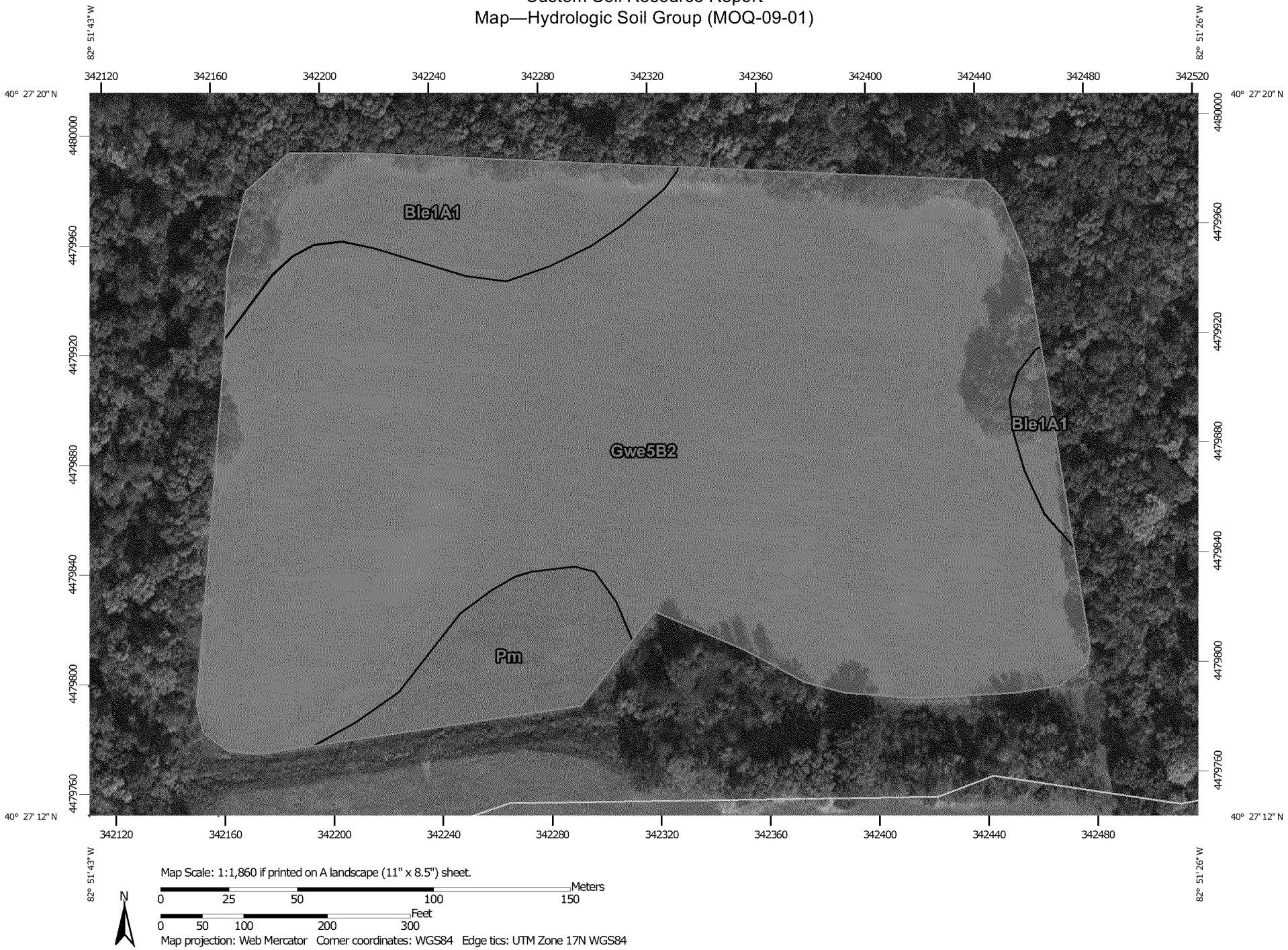
The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Custom Soil Resource Report
Map—Hydrologic Soil Group (MOQ-09-01)



MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

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Coordinate System: Web Mercator (EPSG:3857)

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Table—Hydrologic Soil Group (MOQ-09-01)

Hydrologic Soil Group— Summary by Map Unit — Morrow County, Ohio (OH117)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
Ble1A1	Blount silt loam, end moraine, 0 to 2 percent slopes	D	1.6	10.8%
Gwe5B2	Glynwood clay loam, end moraine, 2 to 6 percent slopes, eroded	D	12.3	83.2%
Pm	Pewamo silty clay loam	C/D	0.9	6.0%
Totals for Area of Interest			**14.7**	**100.0%**

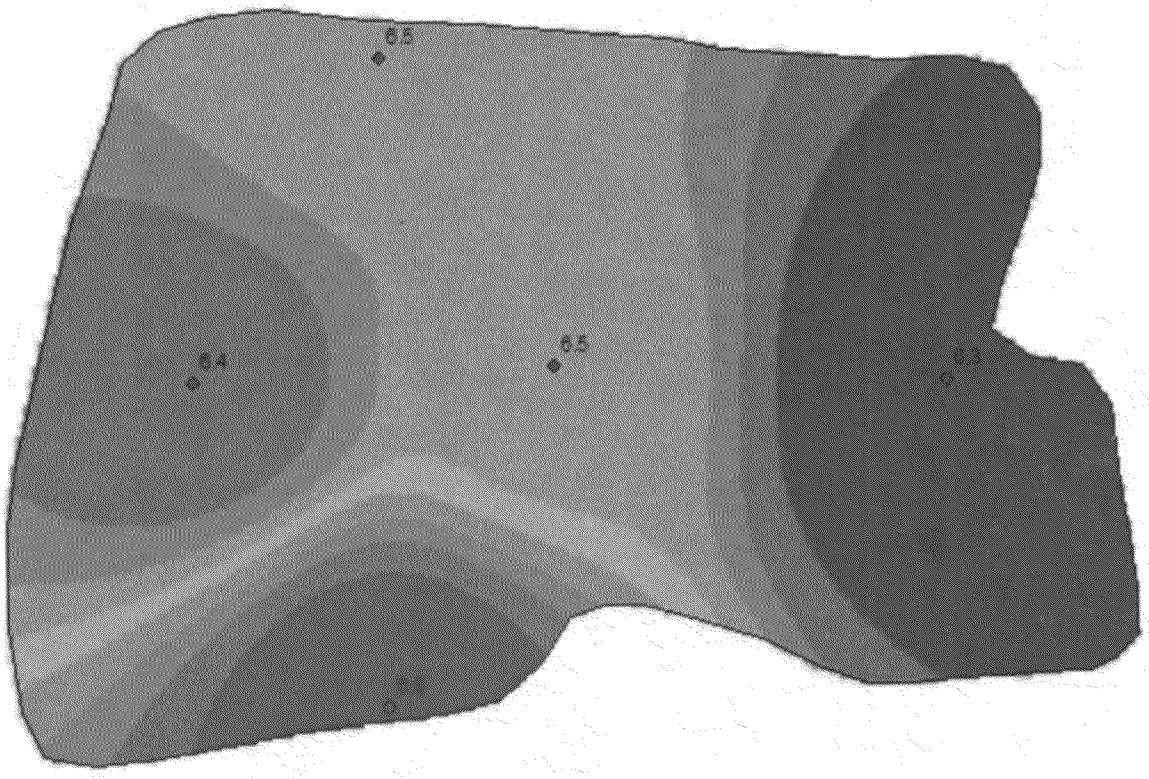
Rating Options—Hydrologic Soil Group (MOQ-09-01)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Home -
Soil Test pH (Water, 1:1)



0 99 198 296 395 ft

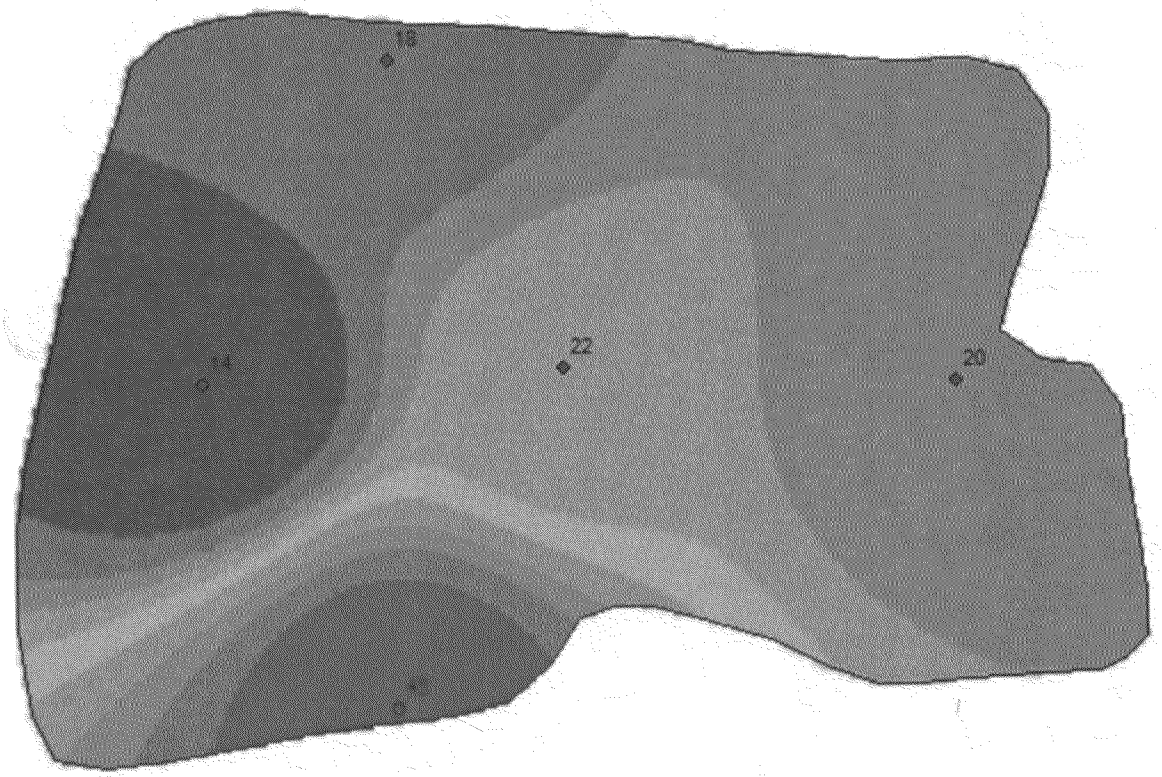
Customer: Loyde Parsons
Address: 2037 Twp Rd 166
Ashley, OH 43003
Boundary Area: 13.39 (ac)
Min: 6.3 (pH)
Avg: 6.5 (pH)
Max: 6.8 (pH)
Std. Dev: 0.1 (pH)
Sample Depth: 0 (in) - 6 (in)
Start Date: 7/16/2012 10:34:00 AM
End Date: 7/16/2012 10:34:00 AM

pH	ac	%
6.3 - 6.4	3.16	23.40
6.4 - 6.4	2.37	17.52
6.4 - 6.5	1.47	10.86
6.5 - 6.5	4.16	30.75
6.5 - 6.6	0.48	3.57
6.6 - 6.6	0.37	2.73
6.6 - 6.7	0.36	2.67
6.7 - 6.8	0.38	2.79
6.8 - 6.8	0.77	5.70

◆ pH Water 1:1
Field Boundary

OHIGRO Inc.
Ohigro Inc.-Waldo
6720 Gillette Rd
Waldo, Ohio 43356
740-726-2429

Home -
Soil Test Phosphorus (Bray P-1, 1:1)



0 99 198 296 395 ft

Customer: Loyde Parsons
Address: 2037 Twp Rd 166
Ashley, OH 43003
Boundary Area: 13.39 (ac)
Min: 14 (lb/ac)
Avg: 22 (lb/ac)
Max: 45 (lb/ac)
Std. Dev: 7 (lb/ac)
Sample Depth: 0 (in) - 6 (in)
Start Date: 7/16/2012 10:34:00 AM
End Date: 7/16/2012 10:34:00 AM

lb/ac	ac	%
14 - 16	1.86	13.74
16 - 19	2.05	15.16
19 - 21	4.59	33.97
21 - 24	2.59	19.19
24 - 28	0.59	4.39
28 - 33	0.39	2.91
33 - 38	0.34	2.53
38 - 42	0.37	2.73
42 - 45	0.73	5.38

◆ P Bray1
Field Boundary

OHIGRO Inc.
Ohigro Inc.-Waldo
6720 Gillette Rd
Waldo, Ohio 43356
740-726-2429

Division of Surface Water
Application for Authorization
Class B Beneficial Use Sites

Form BUA-4 Page 1 of 2

Beneficial Use Site Information

Ohio EPA Site I.D. (Ohio EPA Use Only)

Field site I.D.: MOQ-09-02	
Beneficial use site location: 0.7 miles E of Reader Rd., N of Waldo Fulton Rd.	
County: Morrow	Township: Lincoln
Latitude: 40°27'6.12"N	Longitude: 82°51'33.94"W

Total acreage proposed for beneficial use: 37.4	
Soil pH (s.u.): 6.7	Soil phosphorus (mg/kg): 14.5 Bray Kurtz P1 ■ Mehlich 3 □
Bedrock depth (feet): >3ft	

Type of crops to be grown:

Crop Type	Expected Yield
Corn	185 bu
Soybeans	60 bu
Wheat	
Pasture	
Hay	
Other:	

Soil Types:

Soil Unit Symbol	Soil Unit Name	Hydrologic Soil Group
Ble1A1	Bount silt loam, end moraine, 0 to 2 percent slopes	D
Ble1B1	Bount silt loam, end moraine, 2 to 6 percent slopes	D
Gwd5C2	Glynwood clay loam, 6 to 12 percent slopes, eroded	D
Gwe5B2	Glynwood clay loam, end moraine, 2 to 6 percent slopes, eroded	D
Pm	Pewamo silty clay loam	C/D

Are any endangered species or endangered species habitats located on the beneficial use site?

☐ Yes	■ No

If "Yes" is marked, list the types of endangered species or endangered species habitat:

Have biosolids been beneficially used on the site since July 20, 1993?

☐ Yes	■ No

If "Yes" is marked, list the biosolids generators and years beneficial use occurred:

Generator	Year of Beneficial Use

The application must also include all of the following.

- ■ A soil map of the proposed beneficial use site.
- ■ An aerial map of the proposed beneficial use site that clearly identifies the entrance of the beneficial use site from the nearest road and all applicable isolation distances as established in Chapter 3745-40 of the Ohio Administrative Code.
- ■ A vicinity road map at or near the township level that clearly identifies the proposed beneficial use site with all roads labeled.
- ■ A copy of the most recent soil test results identified in this form.

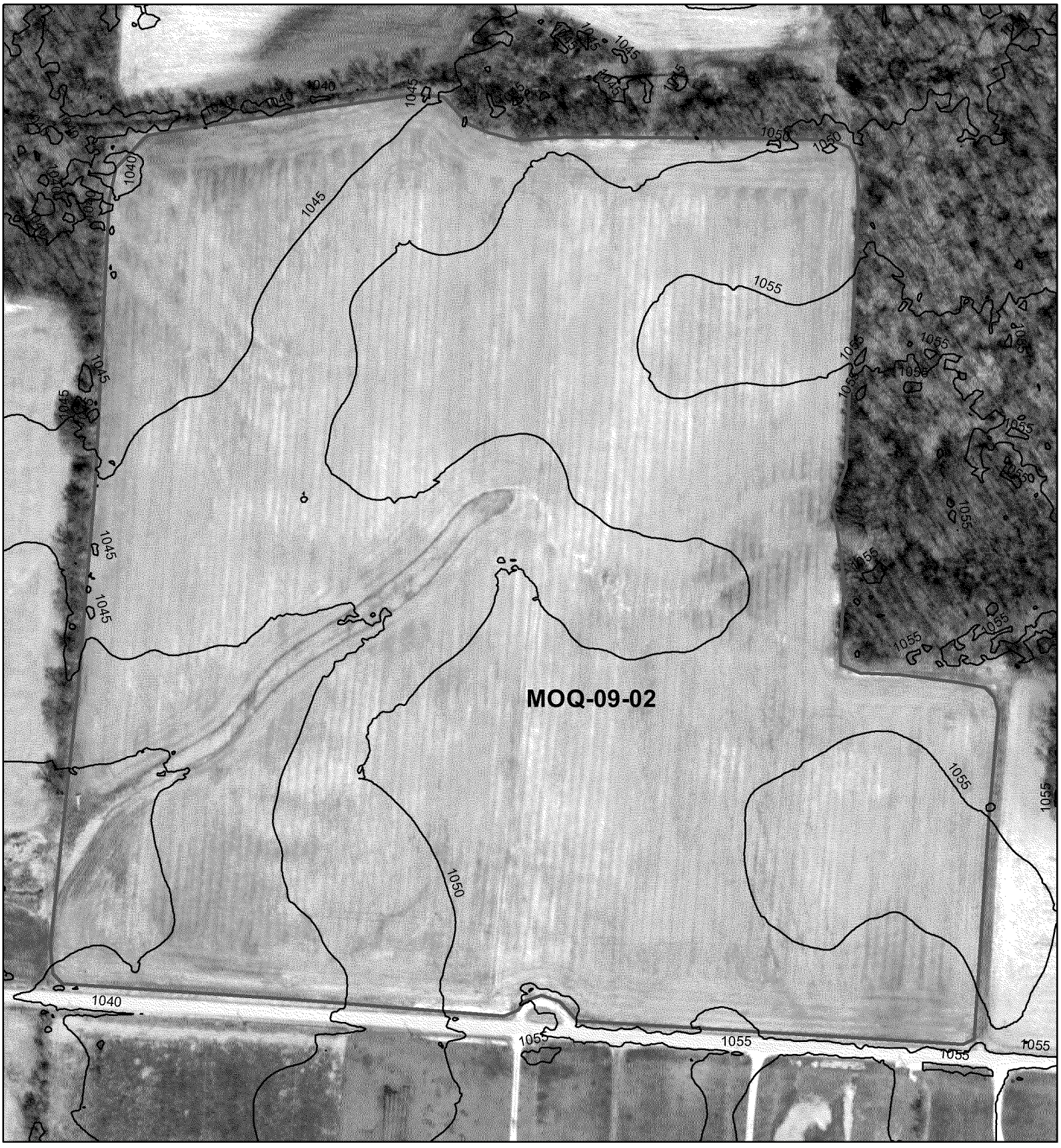
Parsons MOQ-09-02
Total Acreage: 37.4 acres

ED_014244_00001029-00029

quasar energy group

Parsons MOQ-09-02
Total Acreage: 37.4 acres

N



0 150 300 600 Feet

5ft Contours

ED_014244_00001029-00030

Custom Soil Resource Report
Soil Map

Map Scale: 1:3,310 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 45 90 180 270

Feet
0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Morrow County, Ohio
Survey Area Data: Version 13, Sep 19, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 5, 2011—Mar 10, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Morrow County, Ohio (OH117)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
Ble1A1	Blount silt loam, end moraine, 0 to 2 percent slopes	2.9	7.7%
Ble1B1	Blount silt loam, end moraine, 2 to 4 percent slopes	0.2	0.7%
Gwd5C2	Glynwood clay loam, 6 to 12 percent slopes, eroded	3.4	9.2%
Gwe5B2	Glynwood clay loam, end moraine, 2 to 6 percent slopes, eroded	26.4	70.6%
Pm	Pewamo silty clay loam	4.4	11.8%
Totals for Area of Interest		**37.4**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

Morrow County, Ohio

Ble1A1—Blount silt loam, end moraine, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2s1j4
Elevation: 700 to 1,300 feet
Mean annual precipitation: 34 to 42 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 140 to 180 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Blount, end moraine, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Blount, End Moraine

Setting

Landform: End moraines on till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Wisconsin till derived from limestone and shale

Typical profile

Ap - 0 to 10 inches: silt loam
Bt - 10 to 33 inches: silty clay
BC - 33 to 39 inches: clay loam
Cd - 39 to 79 inches: clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 30 to 60 inches to densic material
Natural drainage class: Somewhat poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.20 in/hr)
Depth to water table: About 6 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 35 percent
Salinity, maximum in profile: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: D

Minor Components

Glynwood, end moraine

Percent of map unit: 9 percent

Landform: End moraines on till plains
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex

Pewamo, end moraine

Percent of map unit: 6 percent
Landform: End moraines on till plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave

Ble1B1—Blount silt loam, end moraine, 2 to 4 percent slopes

Map Unit Setting

National map unit symbol: 2s1j5
Elevation: 700 to 1,300 feet
Mean annual precipitation: 34 to 42 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 140 to 180 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Blount, end moraine, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Blount, End Moraine

Setting

Landform: End moraines on till plains
Landform position (two-dimensional): Footslope, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Wisconsin till derived from limestone and shale

Typical profile

Ap - 0 to 9 inches: silt loam
Bt - 9 to 32 inches: silty clay
BC - 32 to 37 inches: clay loam
Cd - 37 to 79 inches: clay loam

Properties and qualities

Slope: 2 to 4 percent
Depth to restrictive feature: 30 to 56 inches to densic material
Natural drainage class: Somewhat poorly drained
Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.20 in/hr)
Depth to water table: About 6 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 35 percent
Salinity, maximum in profile: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 5.6 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: D

Minor Components

Glynwood, end moraine
Percent of map unit: 9 percent
Landform: End moraines on till plains
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex

Pewamo, end moraine
Percent of map unit: 6 percent
Landform: End moraines on till plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave

Gwd5C2—Glynwood clay loam, 6 to 12 percent slopes, eroded

Map Unit Setting
National map unit symbol: 2psgn
Elevation: 750 to 1,300 feet
Mean annual precipitation: 34 to 42 inches
Mean annual air temperature: 48 to 55 degrees F
Frost-free period: 140 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition
Glynwood and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Glynwood

Setting
Landform: End moraines

Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Clayey till

Typical profile

Ap - 0 to 7 inches: clay loam
Bt - 7 to 24 inches: clay
BC - 24 to 29 inches: clay loam
Cd - 29 to 80 inches: clay loam

Properties and qualities

Slope: 6 to 12 percent
Depth to restrictive feature: 24 to 36 inches to densic material
Natural drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.20 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 35 percent
Available water storage in profile: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Other vegetative classification: Trees/Timber (Woody Vegetation)

Minor Components

Blount

Percent of map unit: 8 percent
Landform: Rises on ground moraines, flats on ground moraines
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Trees/Timber (Woody Vegetation)

Morley

Percent of map unit: 7 percent
Landform: Till plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Trees/Timber (Woody Vegetation)

Gwe5B2—Glynwood clay loam, end moraine, 2 to 6 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2t6lj
Elevation: 720 to 1,320 feet
Mean annual precipitation: 34 to 42 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 140 to 180 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Glynwood, end moraine, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Glynwood, End Moraine

Setting

Landform: End moraines on till plains
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Linear, convex
Parent material: Wisconsin till derived from limestone and shale

Typical profile

Ap - 0 to 7 inches: clay loam
Bt - 7 to 26 inches: clay
BC - 26 to 30 inches: clay loam
Cd - 30 to 79 inches: clay loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: 24 to 42 inches to densic material
Natural drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.20 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 35 percent
Salinity, maximum in profile: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: D

Minor Components

Blount, end moraine

Percent of map unit: 9 percent
Landform: End moraines on till plains
Landform position (two-dimensional): Footslope, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear

Pewamo

Percent of map unit: 6 percent
Landform: End moraines on till plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave

Pm—Pewamo silty clay loam

Map Unit Setting

National map unit symbol: 5q8m
Elevation: 600 to 1,400 feet
Mean annual precipitation: 29 to 42 inches
Mean annual air temperature: 46 to 55 degrees F
Frost-free period: 130 to 180 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Pewamo and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pewamo

Setting

Landform: Depressions, drainageways
Parent material: Till

Typical profile

H1 - 0 to 15 inches: silty clay loam
H2 - 15 to 66 inches: silty clay loam
H3 - 66 to 80 inches: clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum in profile: 30 percent
Available water storage in profile: High (about 10.2 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D

Minor Components

Sloan
Percent of map unit: 3 percent
Landform: Flood plains

Condit
Percent of map unit: 3 percent
Landform: Depressions on ground moraines
Down-slope shape: Concave
Across-slope shape: Concave

Carlisle
Percent of map unit: 3 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave

Bennington
Percent of map unit: 3 percent
Landform: Rises on ground moraines, rises on end moraines, flats on ground moraines, flats on end moraines
Landform position (two-dimensional): Summit, shoulder
Down-slope shape: Linear
Across-slope shape: Linear

Blount
Percent of map unit: 3 percent
Landform: Flats on ground moraines, flats on end moraines, rises on ground moraines, rises on end moraines
Landform position (two-dimensional): Summit, shoulder
Down-slope shape: Linear
Across-slope shape: Linear

More sand and less clay in the subsoil
Percent of map unit:
Landform: Depressions, drainageways

Thinner or lighter colored surface layer
Percent of map unit:
Landform: Depressions, drainageways

Slopes of 3 or 4 percent
Percent of map unit:
Landform: Depressions, drainageways

Custom Soil Resource Report
Map—Depth to Any Soil Restrictive Layer (MOQ-09-02)

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

0 - 25

25 - 50

50 - 100

100 - 150

150 - 200

> 200

Not rated or not available

Soil Rating Lines

0 - 25

25 - 50

50 - 100

100 - 150

150 - 200

> 200

Not rated or not available

Soil Rating Points

0 - 25

25 - 50

50 - 100

100 - 150

150 - 200

> 200

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Morrow County, Ohio
Survey Area Data: Version 13, Sep 19, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 5, 2011—Mar 10, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Depth to Any Soil Restrictive Layer (MOQ-09-02)

Depth to Any Soil Restrictive Layer— Summary by Map Unit — Morrow County, Ohio (OH117)				
Map unit symbol	**Map unit name**	**Rating (centimeters)**	**Acres in AOI**	**Percent of AOI**
Ble1A1	Blount silt loam, end moraine, 0 to 2 percent slopes	99	2.9	7.7%
Ble1B1	Blount silt loam, end moraine, 2 to 4 percent slopes	94	0.2	0.7%
Gwd5C2	Glynwood clay loam, 6 to 12 percent slopes, eroded	74	3.4	9.2%
Gwe5B2	Glynwood clay loam, end moraine, 2 to 6 percent slopes, eroded	76	26.4	70.6%
Pm	Pewamo silty clay loam	>200	4.4	11.8%
Totals for Area of Interest			**37.4**	**100.0%**

Rating Options—Depth to Any Soil Restrictive Layer (MOQ-09-02)

Units of Measure: centimeters

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Interpret Nulls as Zero: No

Hydrologic Soil Group (MOQ-09-02)

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Map Scale: 1:3,310 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 45 90 180 270

Feet
0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

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Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

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This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Morrow County, Ohio
Survey Area Data: Version 13, Sep 19, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 5, 2011—Mar 10, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydrologic Soil Group (MOQ-09-02)

Hydrologic Soil Group— Summary by Map Unit — Morrow County, Ohio (OH117)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
Ble1A1	Blount silt loam, end moraine, 0 to 2 percent slopes	D	2.9	7.7%
Ble1B1	Blount silt loam, end moraine, 2 to 4 percent slopes	D	0.2	0.7%
Gwd5C2	Glynwood clay loam, 6 to 12 percent slopes, eroded	D	3.4	9.2%
Gwe5B2	Glynwood clay loam, end moraine, 2 to 6 percent slopes, eroded	D	26.4	70.6%
Pm	Pewamo silty clay loam	C/D	4.4	11.8%
Totals for Area of Interest			**37.4**	**100.0%**

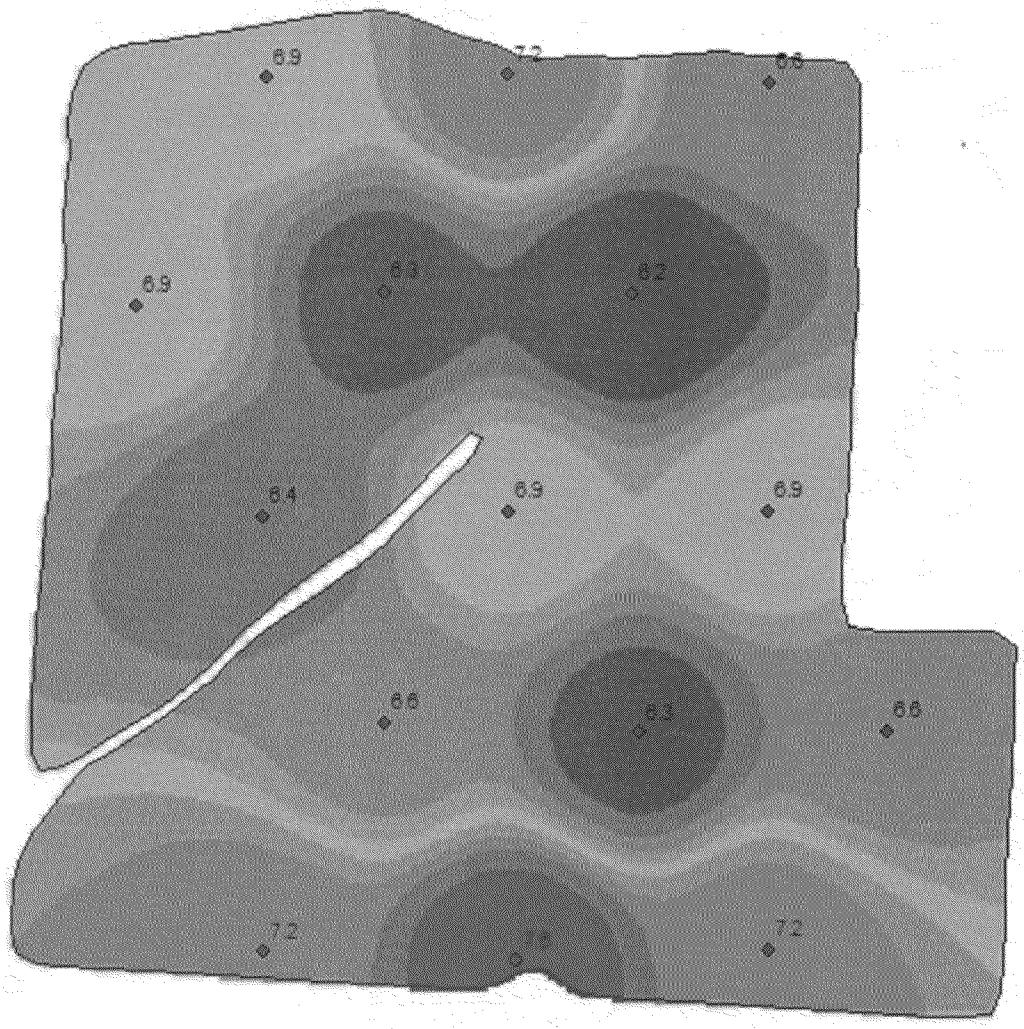
Rating Options—Hydrologic Soil Group (MOQ-09-02)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Home -
Soil Test pH (Water, 1:1)



0 148 297 445 594 ft

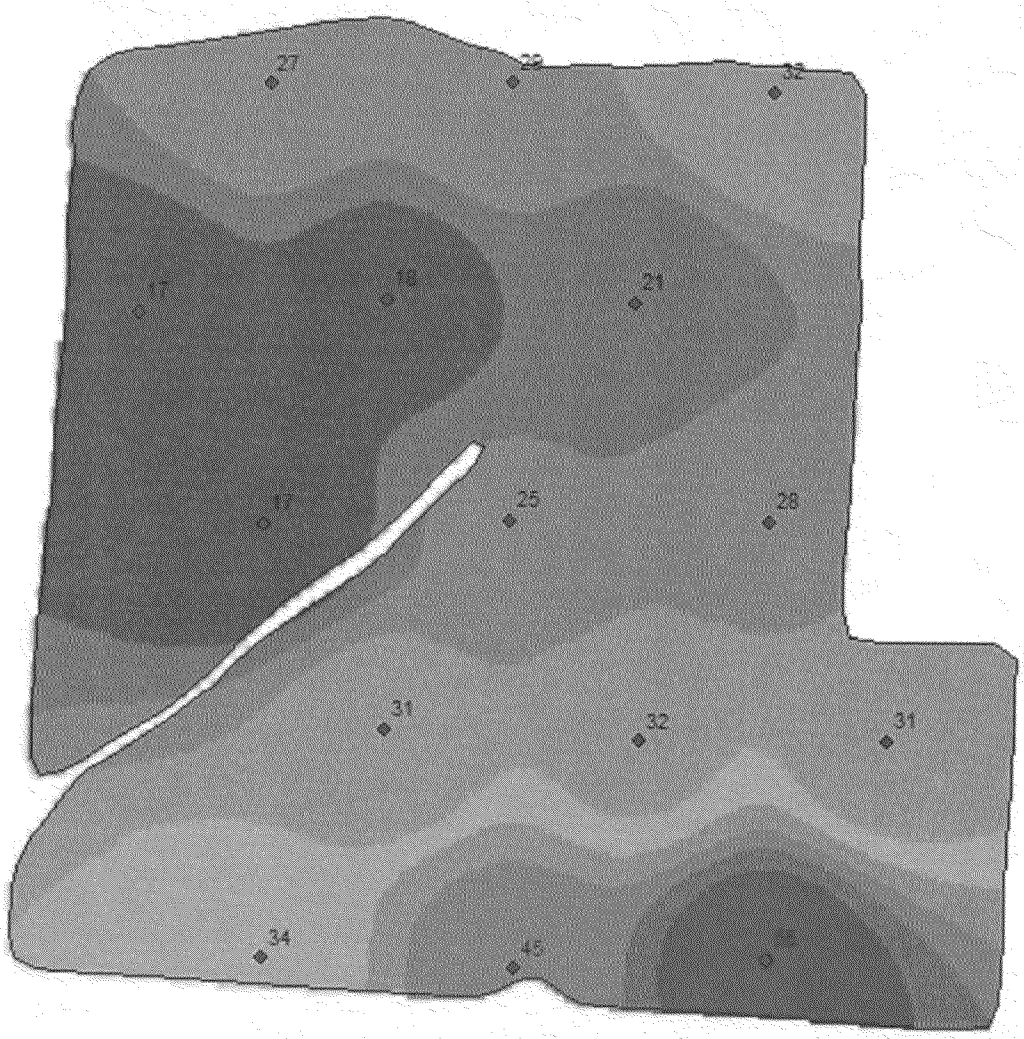
Customer: Loyde Parsons
Address: 2037 Twp Rd 166
Ashley, OH 43003
Boundary Area: 36.66 (ac)
Min: 6.2 (pH)
Avg: 6.7 (pH)
Max: 7.6 (pH)
Std. Dev: 0.3 (pH)
Sample Depth: 0 (in) - 6 (in)
Start Date: 8/8/2014 7:06:00 AM
End Date: 8/8/2014 7:06:00 AM

pH	ac	%
6.2 - 6.4	4.16	11.24
6.4 - 6.5	5.01	13.56
6.5 - 6.7	8.48	22.94
6.7 - 6.8	3.57	9.65
6.8 - 7.0	8.01	21.67
7.0 - 7.1	2.03	5.49
7.1 - 7.3	4.29	11.60
7.3 - 7.5	0.49	1.31
7.5 - 7.6	0.94	2.54

◆ pH Water 1:1
Field Boundary

OHIGRO Inc. Ohigro Inc.-Waldo
740-726-2429

Home -
Soil Test Phosphorus (Bray P-1, 1:1)



0 148 297 445 594 ft

Customer: Loyde Parsons
Address: 2037 Twp Rd 166
Ashley, OH 43003
Boundary Area: 36.66 (ac)
Min: 17 (lb/ac)
Avg: 29 (lb/ac)
Max: 55 (lb/ac)
Std. Dev: 9 (lb/ac)
Sample Depth: 0 (in) - 6 (in)
Start Date: 8/8/2014 7:06:00 AM
End Date: 8/8/2014 7:06:00 AM

lb/ac	ac	%
17 - 20	6.99	18.90
20 - 24	5.02	13.59
24 - 29	8.81	23.84
29 - 33	8.06	21.80
33 - 36	3.36	9.10
36 - 42	1.01	2.73
42 - 47	1.67	4.53
47 - 52	0.69	1.86
52 - 55	1.35	3.66

P Bray1
Field Boundary

OHIGRO Inc. Ohigro Inc.-Waldo
740-726-2429

Division of Surface Water
Application for Authorization
Class B Beneficial Use Sites

Form BUA-4 Page 1 of 2

Beneficial Use Site Information

Ohio EPA Site I.D. (Ohio EPA Use Only)

Field site I.D.: MOQ-09-03	
Beneficial use site location: 1.0 miles E of Reader Rd., N of Waldo Fulton Rd.	
County: Morrow	Township: Lincoln
Latitude: 40°27'1.69"N	Longitude: 82°51'14.48"W

Total acreage proposed for beneficial use: 15.3	
Soil pH (s.u.): 7.1	Soil phosphorus (mg/kg): 9.5 Bray Kurtz P1 ■ Mehlich 3 □
Bedrock depth (feet): >3ft	

Type of crops to be grown:

Crop Type	Expected Yield
Corn	185 bu
Soybeans	60 bu
Wheat	
Pasture	
Hay	
Other:	

Soil Types:

Soil Unit Symbol	Soil Unit Name	Hydrologic Soil Group
Ble1A1	Bount silt loam, end moraine, 0 to 2 percent slopes	D
Gwe5B2	Glynwood clay loam, end moraine, 2 to 6 percent slopes, eroded	D
Pm	Pewamo silty clay loam	C/D

Are any endangered species or endangered species habitats located on the beneficial use site?

☐ Yes	■ No

If "Yes" is marked, list the types of endangered species or endangered species habitat:

Have biosolids been beneficially used on the site since July 20, 1993?

☐ Yes	■ No

If "Yes" is marked, list the biosolids generators and years beneficial use occurred:

Generator	Year of Beneficial Use

The application must also include all of the following.

- ■ A soil map of the proposed beneficial use site.
- ■ An aerial map of the proposed beneficial use site that clearly identifies the entrance of the beneficial use site from the nearest road and all applicable isolation distances as established in Chapter 3745-40 of the Ohio Administrative Code.
- ■ A vicinity road map at or near the township level that clearly identifies the proposed beneficial use site with all roads labeled.
- ■ A copy of the most recent soil test results identified in this form.

quasar energy group

Parsons MOQ-09-03
Total Acreage: 15.3 acres

N

0 150 300 600 Feet

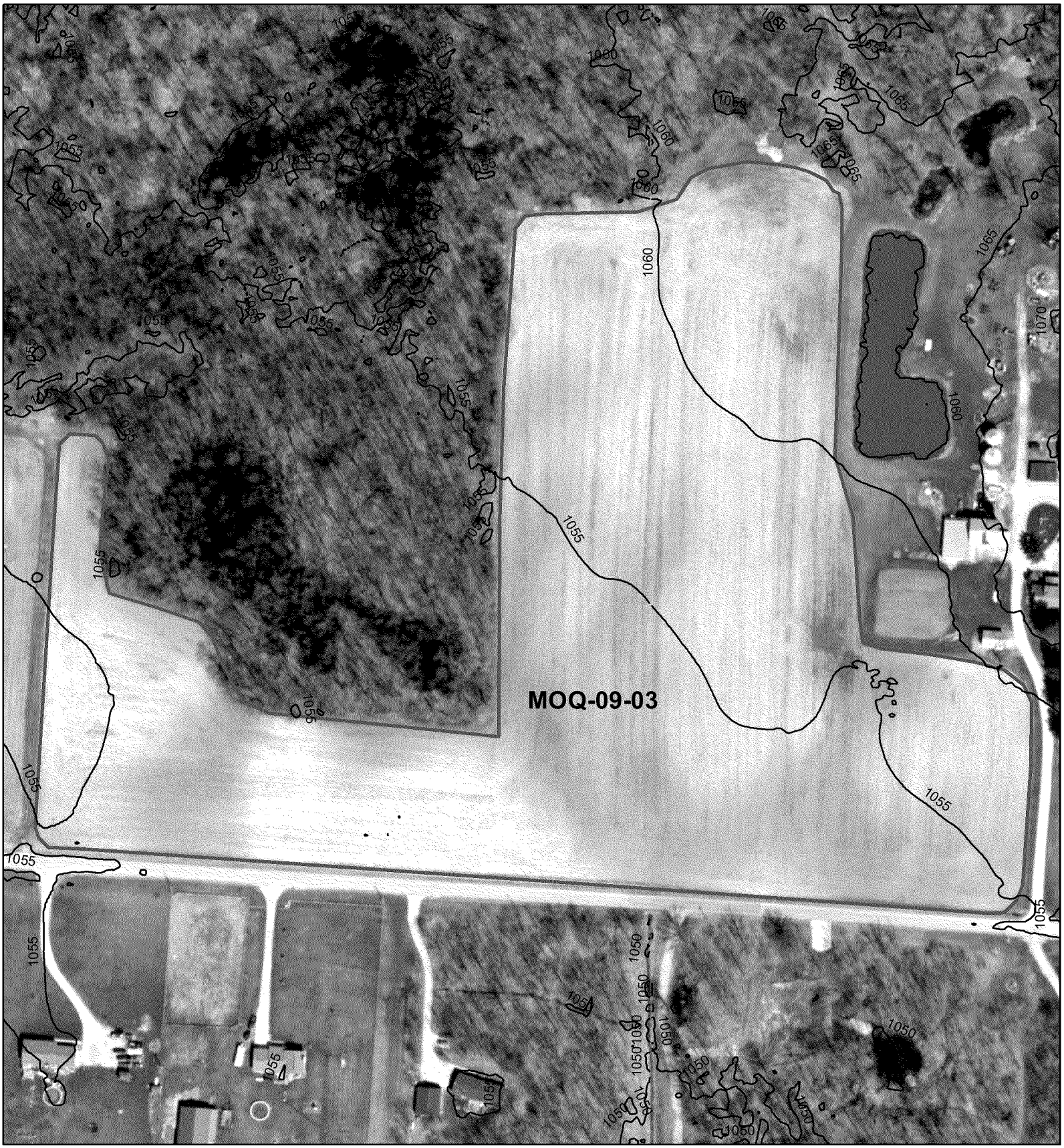
Residences
Waterways
100ft Res Buffer
33ft Water Buffer
300ft Res Buffer

ED_014244_00001029-00051

quasar energy group

Parsons MOQ-09-03
Total Acreage: 15.3 acres

N



0 150 300 600 Feet

5ft Contours

ED_014244_00001029-00052

Custom Soil Resource Report
Soil Map

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Morrow County, Ohio
Survey Area Data: Version 13, Sep 19, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 5, 2011—Mar 10, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Morrow County, Ohio (OH117)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
Ble1A1	Blount silt loam, end moraine, 0 to 2 percent slopes	3.3	21.3%
Gwe5B2	Glynwood clay loam, end moraine, 2 to 6 percent slopes, eroded	7.0	45.4%
Pm	Pewamo silty clay loam	5.1	33.4%
Totals for Area of Interest		**15.4**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments

Morrow County, Ohio

Ble1A1—Blount silt loam, end moraine, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2s1j4
Elevation: 700 to 1,300 feet
Mean annual precipitation: 34 to 42 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 140 to 180 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Blount, end moraine, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Blount, End Moraine

Setting

Landform: End moraines on till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Wisconsin till derived from limestone and shale

Typical profile

Ap - 0 to 10 inches: silt loam
Bt - 10 to 33 inches: silty clay
BC - 33 to 39 inches: clay loam
Cd - 39 to 79 inches: clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 30 to 60 inches to densic material
Natural drainage class: Somewhat poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.20 in/hr)
Depth to water table: About 6 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 35 percent
Salinity, maximum in profile: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: D

Minor Components

Glynwood, end moraine

Percent of map unit: 9 percent

Landform: End moraines on till plains
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex

Pewamo, end moraine

Percent of map unit: 6 percent
Landform: End moraines on till plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave

Gwe5B2—Glynwood clay loam, end moraine, 2 to 6 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2t6lj
Elevation: 720 to 1,320 feet
Mean annual precipitation: 34 to 42 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 140 to 180 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Glynwood, end moraine, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Glynwood, End Moraine

Setting

Landform: End moraines on till plains
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Linear, convex
Parent material: Wisconsin till derived from limestone and shale

Typical profile

Ap - 0 to 7 inches: clay loam
Bt - 7 to 26 inches: clay
BC - 26 to 30 inches: clay loam
Cd - 30 to 79 inches: clay loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: 24 to 42 inches to densic material
Natural drainage class: Moderately well drained
Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.20 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 35 percent
Salinity, maximum in profile: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 4.3 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: D

Minor Components

Blount, end moraine
Percent of map unit: 9 percent
Landform: End moraines on till plains
Landform position (two-dimensional): Footslope, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear

Pewamo
Percent of map unit: 6 percent
Landform: End moraines on till plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave

Pm—Pewamo silty clay loam

Map Unit Setting
National map unit symbol: 5q8m
Elevation: 600 to 1,400 feet
Mean annual precipitation: 29 to 42 inches
Mean annual air temperature: 46 to 55 degrees F
Frost-free period: 130 to 180 days
Farmland classification: Prime farmland if drained

Map Unit Composition
Pewamo and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pewamo

Setting
Landform: Depressions, drainageways

Parent material: Till

Typical profile

H1 - 0 to 15 inches: silty clay loam
H2 - 15 to 66 inches: silty clay loam
H3 - 66 to 80 inches: clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum in profile: 30 percent
Available water storage in profile: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D

Minor Components

Sloan

Percent of map unit: 3 percent
Landform: Flood plains

Condit

Percent of map unit: 3 percent
Landform: Depressions on ground moraines
Down-slope shape: Concave
Across-slope shape: Concave

Carlisle

Percent of map unit: 3 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave

Bennington

Percent of map unit: 3 percent
Landform: Rises on ground moraines, rises on end moraines, flats on ground moraines, flats on end moraines
Landform position (two-dimensional): Summit, shoulder
Down-slope shape: Linear
Across-slope shape: Linear

Blount

Percent of map unit: 3 percent
Landform: Flats on ground moraines, flats on end moraines, rises on ground moraines, rises on end moraines
Landform position (two-dimensional): Summit, shoulder
Down-slope shape: Linear
Across-slope shape: Linear

More sand and less clay in the subsoil
Percent of map unit:
Landform: Depressions, drainageways

Thinner or lighter colored surface layer
Percent of map unit:
Landform: Depressions, drainageways

Slopes of 3 or 4 percent
Percent of map unit:
Landform: Depressions, drainageways

Map—Depth to Any Soil Restrictive Layer (MOQ-09-03)

Map Scale: 1:2,580 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 35 70 140 210

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

0 - 25

25 - 50

50 - 100

100 - 150

150 - 200

> 200

Not rated or not available

Soil Rating Lines

0 - 25

25 - 50

50 - 100

100 - 150

150 - 200

> 200

Not rated or not available

Soil Rating Points

0 - 25

25 - 50

50 - 100

100 - 150

150 - 200

> 200

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Morrow County, Ohio
Survey Area Data: Version 13, Sep 19, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 5, 2011—Mar 10, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Depth to Any Soil Restrictive Layer (MOQ-09-03)

Depth to Any Soil Restrictive Layer— Summary by Map Unit — Morrow County, Ohio (OH117)				
Map unit symbol	**Map unit name**	**Rating (centimeters)**	**Acres in AOI**	**Percent of AOI**
Ble1A1	Blount silt loam, end moraine, 0 to 2 percent slopes	99	3.3	21.3%
Gwe5B2	Glynwood clay loam, end moraine, 2 to 6 percent slopes, eroded	76	7.0	45.4%
Pm	Pewamo silty clay loam	>200	5.1	33.4%
Totals for Area of Interest			**15.4**	**100.0%**

Rating Options—Depth to Any Soil Restrictive Layer (MOQ-09-03)

Units of Measure: centimeters

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Interpret Nulls as Zero: No

Hydrologic Soil Group (MOQ-09-03)

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Custom Soil Resource Report
Map—Hydrologic Soil Group (MOQ-09-03)

Map Scale: 1:2,580 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 35 70 140 210

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Morrow County, Ohio
Survey Area Data: Version 13, Sep 19, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 5, 2011—Mar 10, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydrologic Soil Group (MOQ-09-03)

Hydrologic Soil Group— Summary by Map Unit — Morrow County, Ohio (OH117)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
Ble1A1	Blount silt loam, end moraine, 0 to 2 percent slopes	D	3.3	21.3%
Gwe5B2	Glynwood clay loam, end moraine, 2 to 6 percent slopes, eroded	D	7.0	45.4%
Pm	Pewamo silty clay loam	C/D	5.1	33.4%
Totals for Area of Interest			**15.4**	**100.0%**

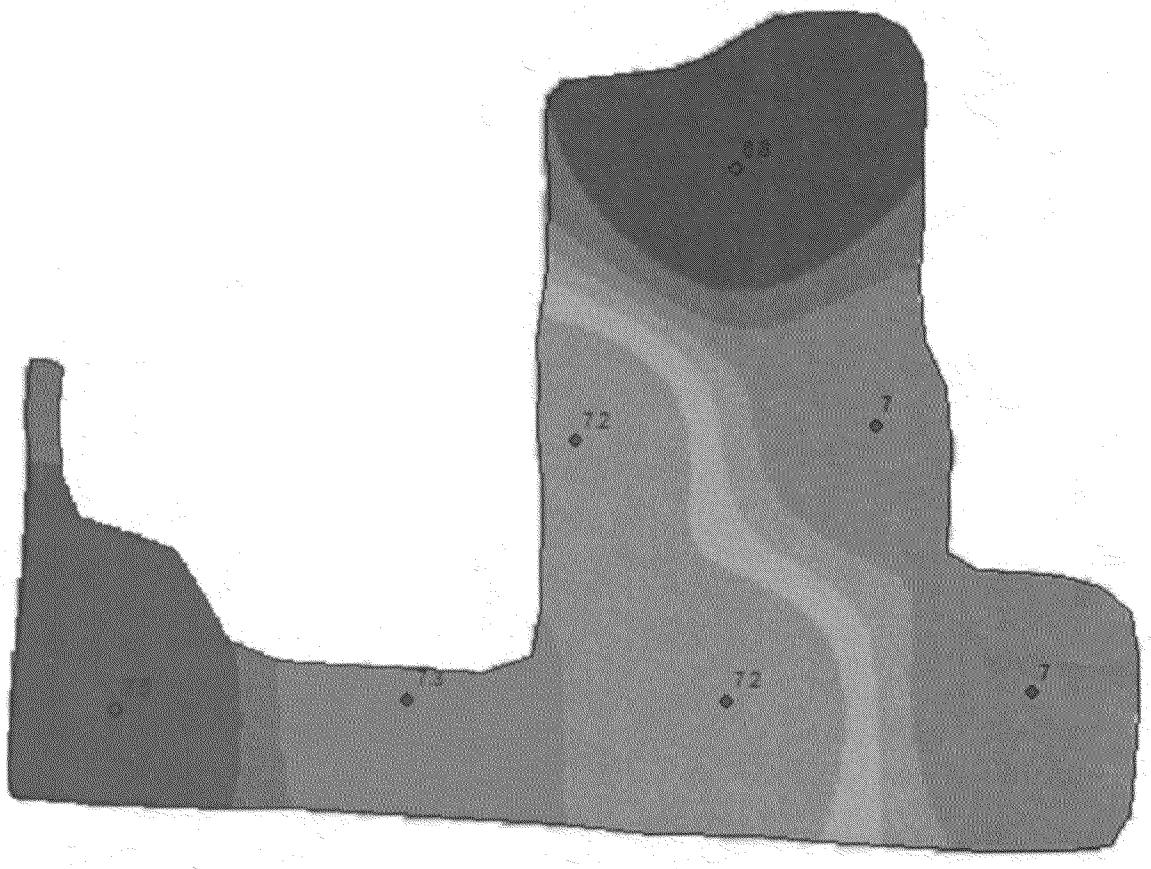
Rating Options—Hydrologic Soil Group (MOQ-09-03)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Home -
Soil Test pH (Water, 1:1)



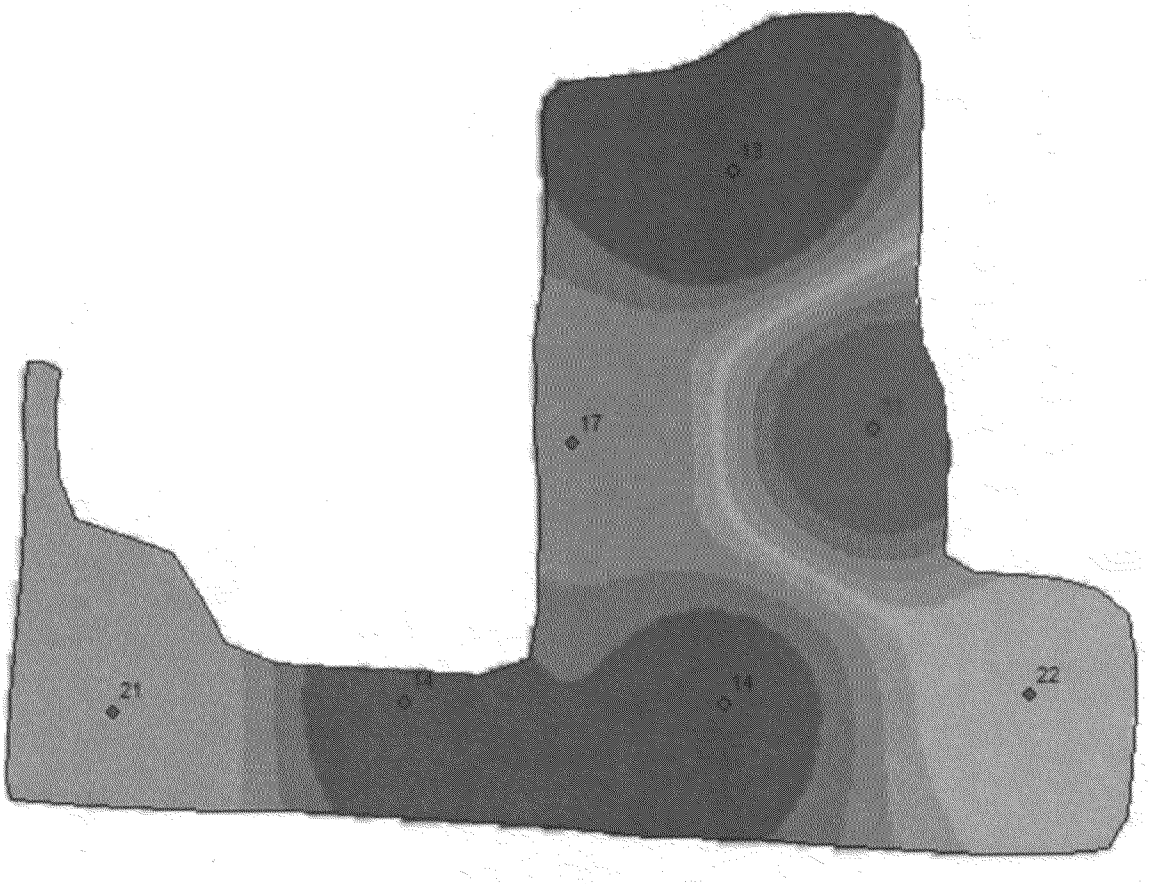
Customer: Loyde Parsons
Address: 2037 Twp Rd 166
Ashley, OH 43003
Boundary Area: 14.54 (ac)
Min: 6.8 (pH)
Avg: 7.1 (pH)
Max: 7.5 (pH)
Std. Dev: 0.2 (pH)
Sample Depth: 0 (in) - 6 (in)
Start Date: 7/16/2012 10:34:00 AM
End Date: 7/16/2012 10:34:00 AM

pH	ac	%
6.8 - 6.9	2.33	15.76
6.9 - 7.0	0.57	3.84
7.0 - 7.0	3.43	23.23
7.0 - 7.1	0.82	5.54
7.1 - 7.2	0.83	5.59
7.2 - 7.2	3.23	21.88
7.2 - 7.3	1.37	9.29
7.3 - 7.4	0.32	2.20
7.4 - 7.5	1.87	12.66

◆ pH Water 1:1
Field Boundary

OHIGRO Inc.
Ohigro Inc.-Waldo
6720 Gillette Rd
Waldo, Ohio 43356
740-726-2429

Home -
Soil Test Phosphorus (Bray P-1, 1:1)



0 123 245 368 490 ft

Customer: Loyde Parsons
Address: 2037 Twp Rd 166
Ashley, OH 43003
Boundary Area: 14.54 (ac)
Min: 13 (lb/ac)
Avg: 19 (lb/ac)
Max: 31 (lb/ac)
Std. Dev: 5 (lb/ac)
Sample Depth: 0 (in) - 6 (in)
Start Date: 7/16/2012 10:34:00 AM
End Date: 7/16/2012 10:34:00 AM

lb/ac	ac	%
13 - 15	4.93	33.40
15 - 16	1.38	9.36
16 - 19	2.06	13.95
19 - 21	2.63	17.81
21 - 23	1.91	12.93
23 - 25	0.30	2.00
25 - 27	0.29	1.94
27 - 30	0.36	2.45
30 - 31	0.91	6.16
P Bray1		
Field Boundary		

OHIGRO Inc.
Ohigro Inc.-Waldo
6720 Gillette Rd
Waldo, Ohio 43356
740-726-2429


166
MOQ-09-04
MOQ-09-05
MOQ-09-06
© 2014 Google
1494 ft
21
Prospect-Mt-Vernon-Rd
Google earth

Division of Surface Water
Application for Authorization
Class B Beneficial Use Sites

Form BUA-4 Page 1 of 2

Beneficial Use Site Information

Ohio EPA Site I.D. (Ohio EPA Use Only)

Field site I.D.: MOQ-09-04	
Beneficial use site location: 0.4 miles S of Westfield Fulton Rd., on E side of Pompey Rd.	
County: Morrow	Township: Lincoln
Latitude: 40°25'50.80"N	Longitude: 82°53'43.04"W

Total acreage proposed for beneficial use: 37.8	
Soil pH (s.u.): 6.7	Soil phosphorus (mg/kg): 14.2 Bray Kurtz P1 ■ Mehlich 3 □
Bedrock depth (feet): >3ft	

Type of crops to be grown:

Crop Type	Expected Yield
Corn	185 bu
Soybeans	60 bu
Wheat	
Pasture	
Hay	
Other:	

Soil Types:

Soil Unit Symbol	Soil Unit Name	Hydrologic Soil Group
Blg1A1	Bount silt loam, ground moraine, 0 to 2 percent slopes	D
Blg1B1	Bount silt loam, ground moraine, 2 to 4 percent slopes	D
Pm	Pewamo silty clay loam	C/D

Are any endangered species or endangered species habitats located on the beneficial use site?

☐ Yes	■ No

If "Yes" is marked, list the types of endangered species or endangered species habitat:

Have biosolids been beneficially used on the site since July 20, 1993?

☐ Yes	■ No

If "Yes" is marked, list the biosolids generators and years beneficial use occurred:

Generator	Year of Beneficial Use

The application must also include all of the following.

- ■ A soil map of the proposed beneficial use site.
- ■ An aerial map of the proposed beneficial use site that clearly identifies the entrance of the beneficial use site from the nearest road and all applicable isolation distances as established in Chapter 3745-40 of the Ohio Administrative Code.
- ■ A vicinity road map at or near the township level that clearly identifies the proposed beneficial use site with all roads labeled.
- ■ A copy of the most recent soil test results identified in this form.

quasar energy group

Parsons MOQ-09-04
Total Acreage: 37.8 acres

N

0 150 300 600 Feet

Residences
Waterways
100ft Res Buffer
33ft Water Buffer
300ft Res Buffer

ED_014244_00001029-00072

quasar energy group

Parsons MOQ-09-04
Total Acreage: 37.8 acres

N

0 150 300 600 Feet

5ft Contours

Custom Soil Resource Report
Soil Map

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Morrow County, Ohio
Survey Area Data: Version 13, Sep 19, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 5, 2011—Mar 10, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Morrow County, Ohio (OH117)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
Blg1A1	Blount silt loam, ground moraine, 0 to 2 percent slopes	14.9	42.6%
Blg1B1	Blount silt loam, ground moraine, 2 to 4 percent slopes	0.1	0.2%
Pm	Pewamo silty clay loam	20.0	57.2%
Totals for Area of Interest		**34.9**	**100.0%**

Map Unit Descriptions

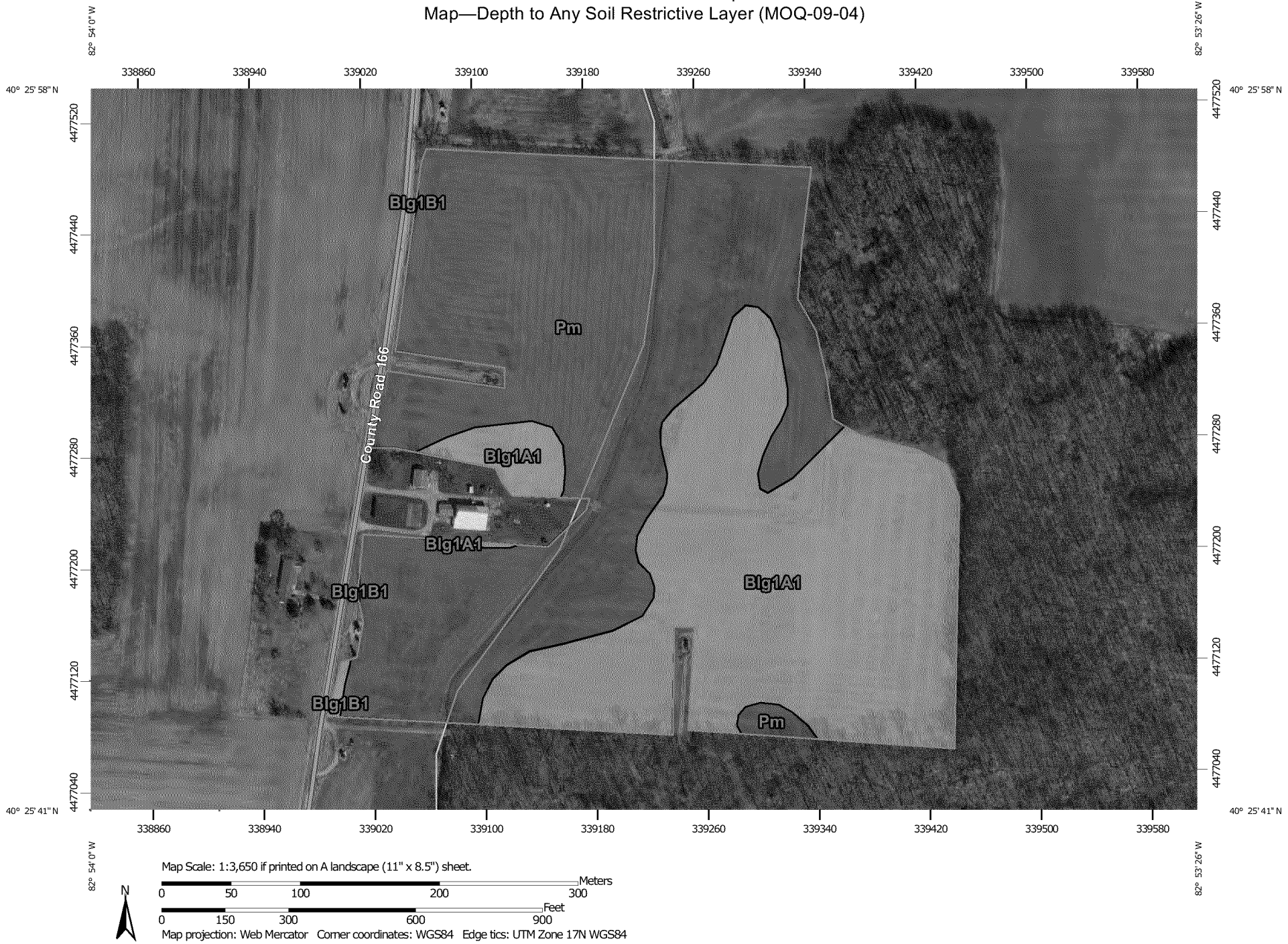
The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If

Custom Soil Resource Report
Map—Depth to Any Soil Restrictive Layer (MOQ-09-04)



MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

0 - 25

25 - 50

50 - 100

100 - 150

150 - 200

> 200

Not rated or not available

Soil Rating Lines

0 - 25

25 - 50

50 - 100

100 - 150

150 - 200

> 200

Not rated or not available

Soil Rating Points

0 - 25

25 - 50

50 - 100

100 - 150

150 - 200

> 200

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Morrow County, Ohio
Survey Area Data: Version 13, Sep 19, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 5, 2011—Mar 10, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Depth to Any Soil Restrictive Layer (MOQ-09-04)

Depth to Any Soil Restrictive Layer— Summary by Map Unit — Morrow County, Ohio (OH117)				
Map unit symbol	**Map unit name**	**Rating (centimeters)**	**Acres in AOI**	**Percent of AOI**
Blg1A1	Blount silt loam, ground moraine, 0 to 2 percent slopes	99	14.9	42.6%
Blg1B1	Blount silt loam, ground moraine, 2 to 4 percent slopes	94	0.1	0.2%
Pm	Pewamo silty clay loam	>200	20.0	57.2%
Totals for Area of Interest			**34.9**	**100.0%**

Rating Options—Depth to Any Soil Restrictive Layer (MOQ-09-04)

Units of Measure: centimeters

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Interpret Nulls as Zero: No

Hydrologic Soil Group (MOQ-09-04)

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Custom Soil Resource Report
Map—Hydrologic Soil Group (MOQ-09-04)

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

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Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

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This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Morrow County, Ohio
Survey Area Data: Version 13, Sep 19, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 5, 2011—Mar 10, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydrologic Soil Group (MOQ-09-04)

Hydrologic Soil Group— Summary by Map Unit — Morrow County, Ohio (OH117)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
Blg1A1	Blount silt loam, ground moraine, 0 to 2 percent slopes	D	14.9	42.6%
Blg1B1	Blount silt loam, ground moraine, 2 to 4 percent slopes	D	0.1	0.2%
Pm	Pewamo silty clay loam	C/D	20.0	57.2%
Totals for Area of Interest			**34.9**	**100.0%**

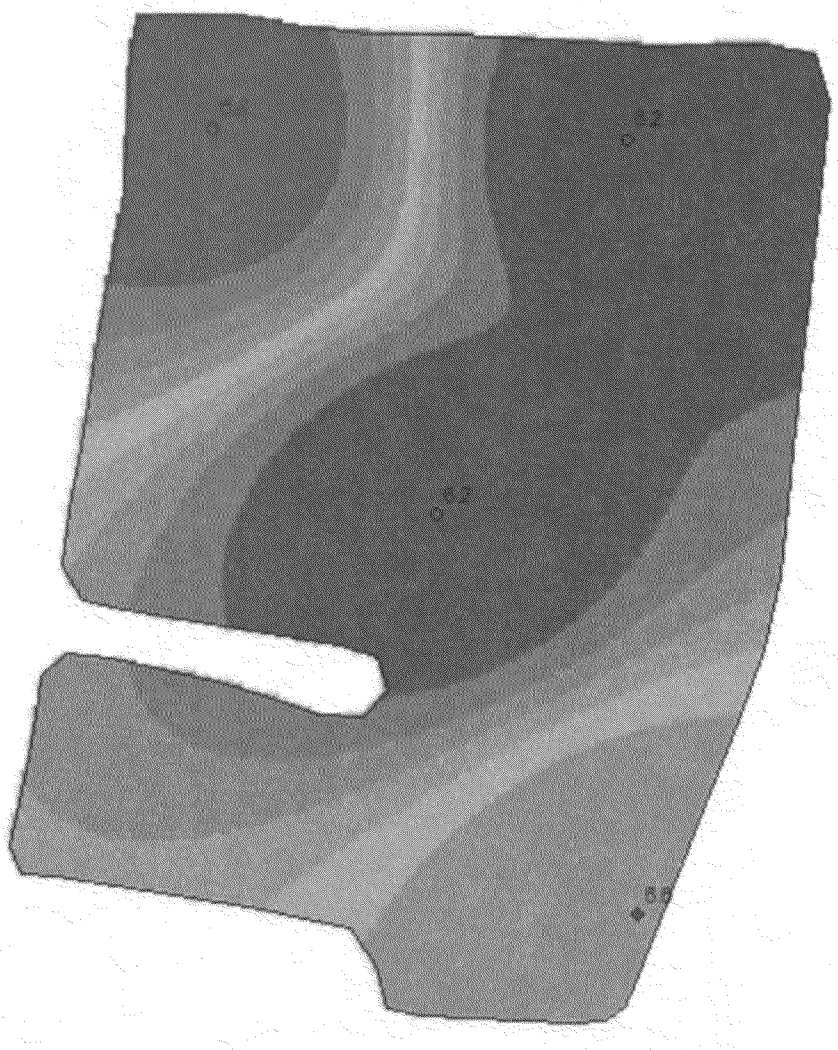
Rating Options—Hydrologic Soil Group (MOQ-09-04)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

21 & 166 -
Soil Test pH (Water, 1:1)

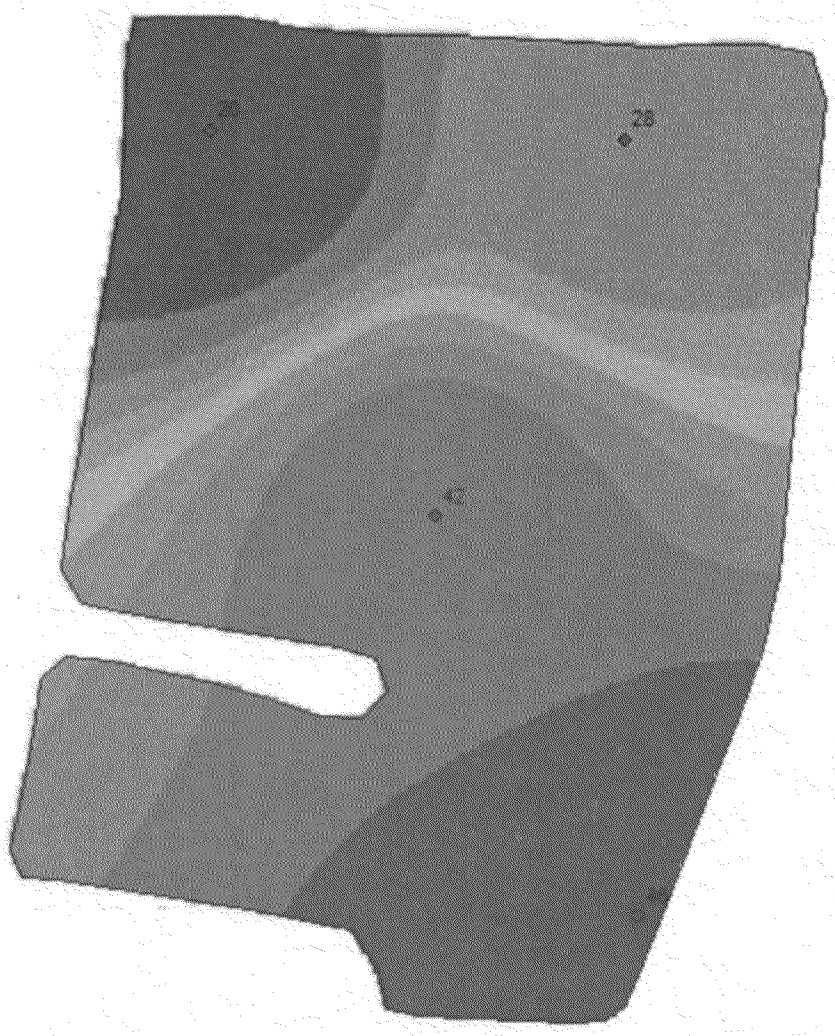


Customer: Loyde Parsons
Address: 2037 Twp Rd 166
Ashley, OH 43003
Boundary Area: 9.09 (ac)
Min: 6.2 (pH)
Avg: 6.4 (pH)
Max: 6.8 (pH)
Std. Dev: 0.2 (pH)
Sample Depth: 0 (in) - 6 (in)
Start Date: 11/7/2012 9:12:00 AM
End Date: 11/7/2012 9:12:00 AM

pH	ac	%
6.2 - 6.2	3.33	36.27
6.2 - 6.3	1.09	11.82
6.3 - 6.4	1.03	11.19
6.4 - 6.5	0.76	8.24
6.5 - 6.5	0.58	6.27
6.5 - 6.6	1.20	13.03
6.6 - 6.7	0.18	1.98
6.7 - 6.8	0.24	2.67
6.8 - 6.8	0.78	8.54
◆ pH Water 1:1		
Field Boundary		

OHIGRO Inc.
Ohigro Inc.-Waldo
6720 Gillette Rd
Waldo, Ohio 43356
740-726-2429

21 & 166 -
Soil Test Phosphorus (Bray P-1, 1:1)



0 85 169 254 339 ft

Customer: Loyde Parsons
Address: 2037 Twp Rd 166
Ashley, OH 43003
Boundary Area: 9.09 (ac)
Min: 20 (lb/ac)
Avg: 36 (lb/ac)
Max: 46 (lb/ac)
Std. Dev: 8 (lb/ac)
Sample Depth: 0 (in) - 6 (in)
Start Date: 11/7/2012 9:12:00 AM
End Date: 11/7/2012 9:12:00 AM

lb/ac	ac	%
20 - 22	1.00	10.88
22 - 26	0.36	3.90
26 - 29	1.55	16.93
29 - 32	0.41	4.46
32 - 35	0.40	4.32
35 - 38	0.51	5.50
38 - 41	1.04	11.35
41 - 44	2.45	26.70
44 - 46	1.47	15.96
P Bray1		
Field Boundary		

OHIGRO Inc.
Ohigro Inc.-Waldo
6720 Gillette Rd
Waldo, Ohio 43356
740-726-2429

21 & 166 -
Soil Test pH (Water, 1:1)

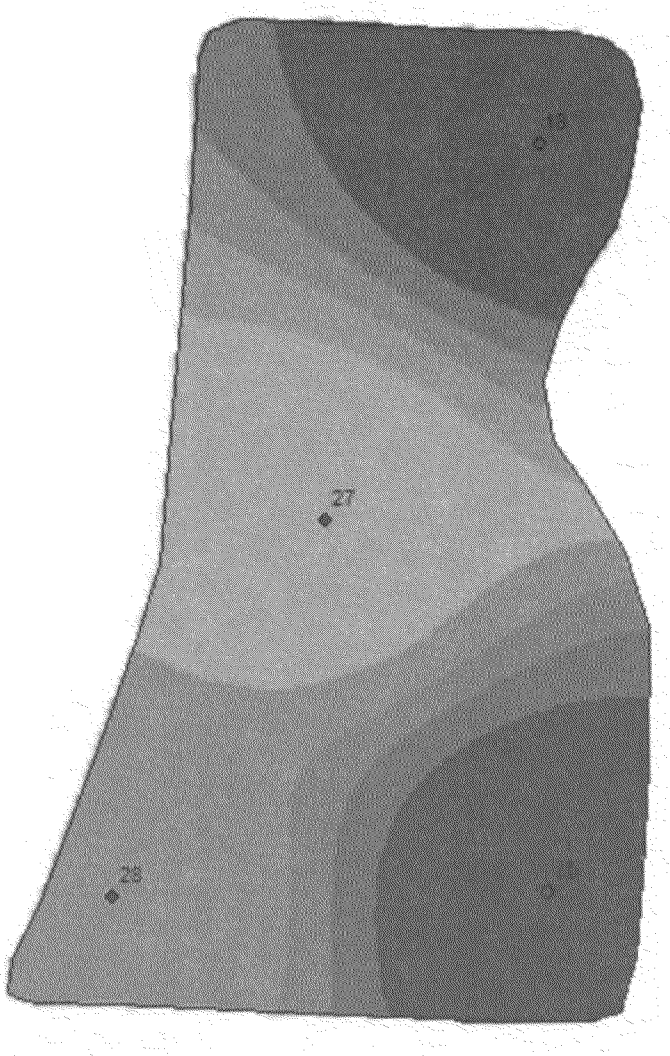
Customer: Loyde Parsons
Address: 2037 Twp Rd 166
Ashley, OH 43003
Boundary Area: 7.33 (ac)
Min: 7.1 (pH)
Avg: 7.4 (pH)
Max: 7.5 (pH)
Std. Dev: 0.1 (pH)
Sample Depth: 0 (in) - 6 (in)
Start Date: 10/22/2012 2:45:00 PM
End Date: 10/22/2012 2:45:00 PM

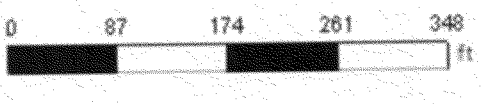
pH	ac	%
7.1 - 7.1	0.91	12.32
7.1 - 7.2	0.27	3.69
7.2 - 7.2	0.19	2.59
7.2 - 7.3	0.17	2.34
7.3 - 7.3	1.39	18.81
7.3 - 7.4	0.61	8.30
7.4 - 7.4	0.54	7.31
7.4 - 7.5	0.77	10.38
7.5 - 7.5	2.54	34.25

◆ pH Water 1:1
Field Boundary

OHIGRO Inc.
Ohigro Inc.-Waldo
6720 Gillette Rd
Waldo, Ohio 43356
740-726-2429

21 & 166 -
Soil Test Phosphorus (Bray P-1, 1:1)





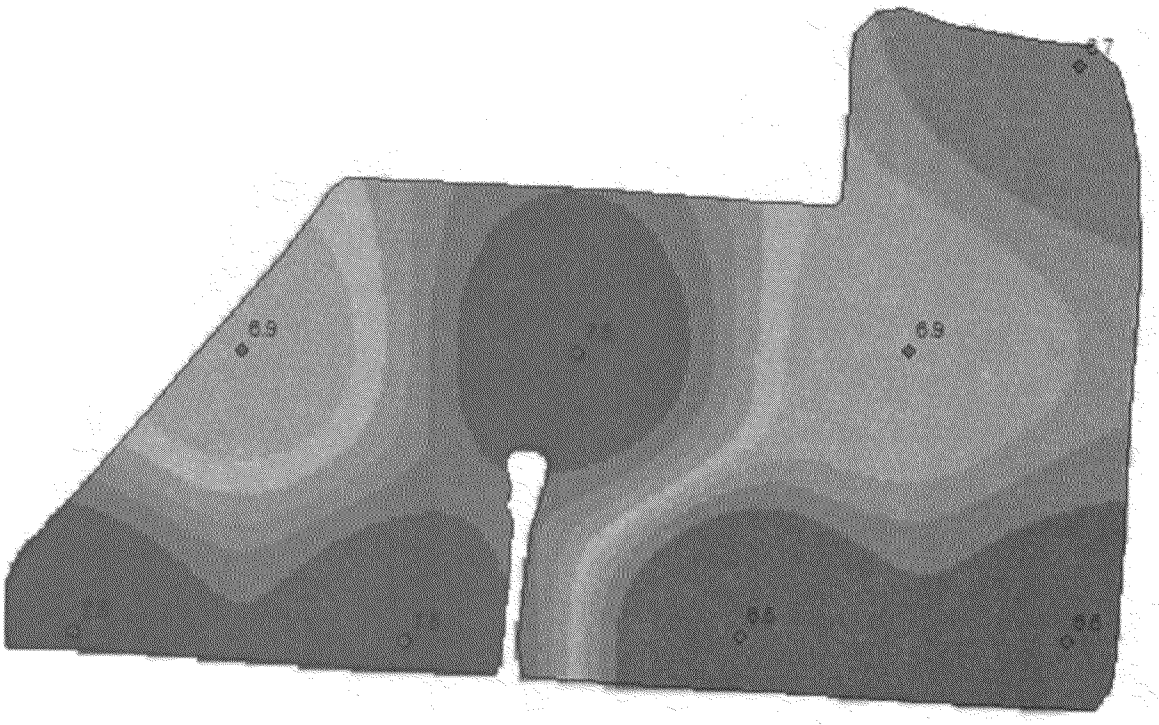
Customer: Loyde Parsons
Address: 2037 Twp Rd 166
Ashley, OH 43003
Boundary Area: 7.33 (ac)
Min: 18 (lb/ac)
Avg: 27 (lb/ac)
Max: 35 (lb/ac)
Std. Dev: 5 (lb/ac)
Sample Depth: 0 (in) - 6 (in)
Start Date: 10/22/2012 2:45:00 PM
End Date: 10/22/2012 2:45:00 PM

lb/ac	ac	%
18 - 19	1.19	16.08
19 - 21	0.44	5.93
21 - 24	0.28	3.81
24 - 26	0.33	4.47
26 - 28	1.73	23.39
28 - 29	1.46	19.76
29 - 31	0.41	5.48
31 - 34	0.40	5.40
34 - 35	1.16	15.66

◆ P Bray1
Field Boundary

OHIGRO Inc.
Ohigro Inc.-Waldo
6720 Gillette Rd
Waldo, Ohio 43356
740-726-2429

21 & 166 -
Soil Test pH (Water, 1:1)



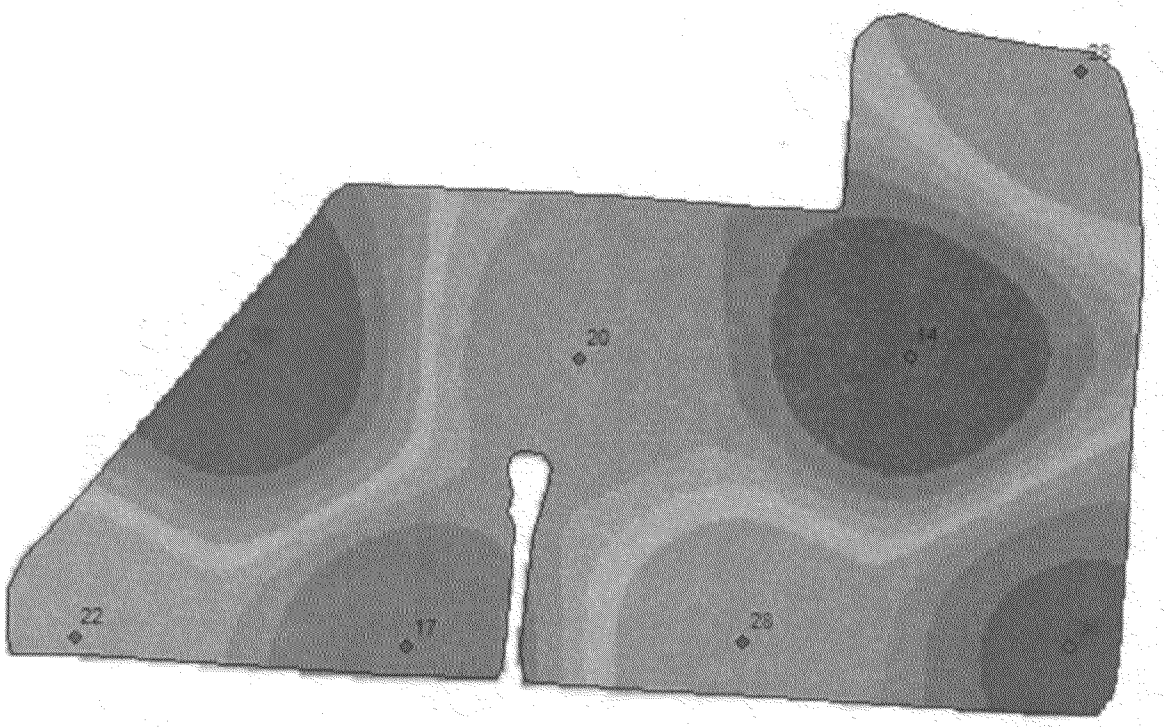
0 112 224 336 448 ft

Customer: Loyde Parsons
Address: 2037 Twp Rd 166
Ashley, OH 43003
Boundary Area: 13.49 (ac)
Min: 6.5 (pH)
Avg: 7.0 (pH)
Max: 7.5 (pH)
Std. Dev: 0.3 (pH)
Sample Depth: 0 (in) - 6 (in)
Start Date: 10/22/2012 2:45:00 PM
End Date: 10/22/2012 2:45:00 PM

pH	ac	%
6.5 - 6.6	2.12	15.52
6.6 - 6.8	1.53	11.22
6.8 - 6.9	1.16	8.50
6.9 - 6.9	2.62	19.16
6.9 - 7.1	0.77	5.66
7.1 - 7.2	0.66	4.82
7.2 - 7.3	0.72	5.26
7.3 - 7.4	1.20	8.80
7.4 - 7.5	2.88	21.06
pH Water 1:1		
Field Boundary		

OHIGRO Inc.
Ohigro Inc.-Waldo
6720 Gillette Rd
Waldo, Ohio 43356
740-726-2429

21 & 166 -
Soil Test Phosphorus (Bray P-1, 1:1)



0 112 224 336 448 ft

Customer: Loyde Parsons
Address: 2037 Twp Rd 166
Ashley, OH 43003
Boundary Area: 13.49 (ac)
Min: 14 (lb/ac)
Avg: 24 (lb/ac)
Max: 38 (lb/ac)
Std. Dev: 7 (lb/ac)
Sample Depth: 0 (in) - 6 (in)
Start Date: 10/22/2012 2:45:00 PM
End Date: 10/22/2012 2:45:00 PM

lb/ac	ac	%
14 - 16	1.43	10.48
16 - 19	1.67	12.22
19 - 21	2.67	19.58
21 - 24	1.78	13.06
24 - 26	1.17	8.58
26 - 29	2.28	16.66
29 - 33	0.56	4.13
33 - 36	0.74	5.40
36 - 38	1.35	9.89

◆ P Bray1
Field Boundary

OHIGRO Inc.
Ohigro Inc.-Waldo
6720 Gillette Rd
Waldo, Ohio 43356
740-726-2429

Division of Surface Water
Application for Authorization
Class B Beneficial Use Sites

Form BUA-4 Page 1 of 2

Beneficial Use Site Information

Ohio EPA Site I.D. (Ohio EPA Use Only)

Field site I.D.: MOQ-09-05	
Beneficial use site location: NE corner of Pompey Rd and Prospect Mt. Vernon Rd..	
County: Morrow	Township: Peru
Latitude: 40°25'31.55"N	Longitude: 82°53'52.87"W

Total acreage proposed for beneficial use: 25.8	
Soil pH (s.u.): 5.6	Soil phosphorus (mg/kg): 6.5 Bray Kurtz P1 ■ Mehlich 3 □
Bedrock depth (feet): >3ft	

Type of crops to be grown:

Crop Type	Expected Yield
Corn	185 bu
Soybeans	60 bu
Wheat	
Pasture	
Hay	
Other:	

Soil Types:

Soil Unit Symbol	Soil Unit Name	Hydrologic Soil Group
Blg1A1	Bount silt loam, ground moraine, 0 to 2 percent slopes	D
Blg1B1	Bount silt loam, ground moraine, 2 to 4 percent slopes	D
Pm	Pewamo silty clay loam	C/D

Are any endangered species or endangered species habitats located on the beneficial use site?

☐ Yes	■ No

If "Yes" is marked, list the types of endangered species or endangered species habitat:

Have biosolids been beneficially used on the site since July 20, 1993?

☐ Yes	■ No

If "Yes" is marked, list the biosolids generators and years beneficial use occurred:

Generator	Year of Beneficial Use

The application must also include all of the following.

- ■ A soil map of the proposed beneficial use site.
- ■ An aerial map of the proposed beneficial use site that clearly identifies the entrance of the beneficial use site from the nearest road and all applicable isolation distances as established in Chapter 3745-40 of the Ohio Administrative Code.
- ■ A vicinity road map at or near the township level that clearly identifies the proposed beneficial use site with all roads labeled.
- ■ A copy of the most recent soil test results identified in this form.

quasar energy group

Parsons MOQ-09-05
Total Acreage: 25.8 acres

N

0 150 300 600 Feet

Residences
Waterways
100ft Res Buffer
33ft Water Buffer
300ft Res Buffer

ED_014244_00001029-00091

quasar energy group

Parsons MOQ-09-05
Total Acreage: 25.8 acres

N

0 300 600 1,200 Feet

5ft Contours

ED_014244_00001029-00092

Custom Soil Resource Report
Soil Map

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

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Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

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This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Morrow County, Ohio
Survey Area Data: Version 13, Sep 19, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 5, 2011—Mar 10, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Morrow County, Ohio (OH117)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
Blg1A1	Blount silt loam, ground moraine, 0 to 2 percent slopes	5.6	21.2%
Blg1B1	Blount silt loam, ground moraine, 2 to 4 percent slopes	8.9	33.9%
Pm	Pewamo silty clay loam	11.8	44.9%
Totals for Area of Interest		**26.3**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If

Custom Soil Resource Report
Map—Depth to Any Soil Restrictive Layer (MOQ-09-05)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Soil Rating Lines
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Soil Rating Points
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Morrow County, Ohio
Survey Area Data: Version 13, Sep 19, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 5, 2011—Mar 10, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Depth to Any Soil Restrictive Layer (MOQ-09-05)

Depth to Any Soil Restrictive Layer— Summary by Map Unit — Morrow County, Ohio (OH117)				
Map unit symbol	**Map unit name**	**Rating (centimeters)**	**Acres in AOI**	**Percent of AOI**
Blg1A1	Blount silt loam, ground moraine, 0 to 2 percent slopes	99	5.6	21.2%
Blg1B1	Blount silt loam, ground moraine, 2 to 4 percent slopes	94	8.9	33.9%
Pm	Pewamo silty clay loam	>200	11.8	44.9%
Totals for Area of Interest			**26.3**	**100.0%**

Rating Options—Depth to Any Soil Restrictive Layer (MOQ-09-05)

Units of Measure: centimeters

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Interpret Nulls as Zero: No

Hydrologic Soil Group (MOQ-09-05)

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

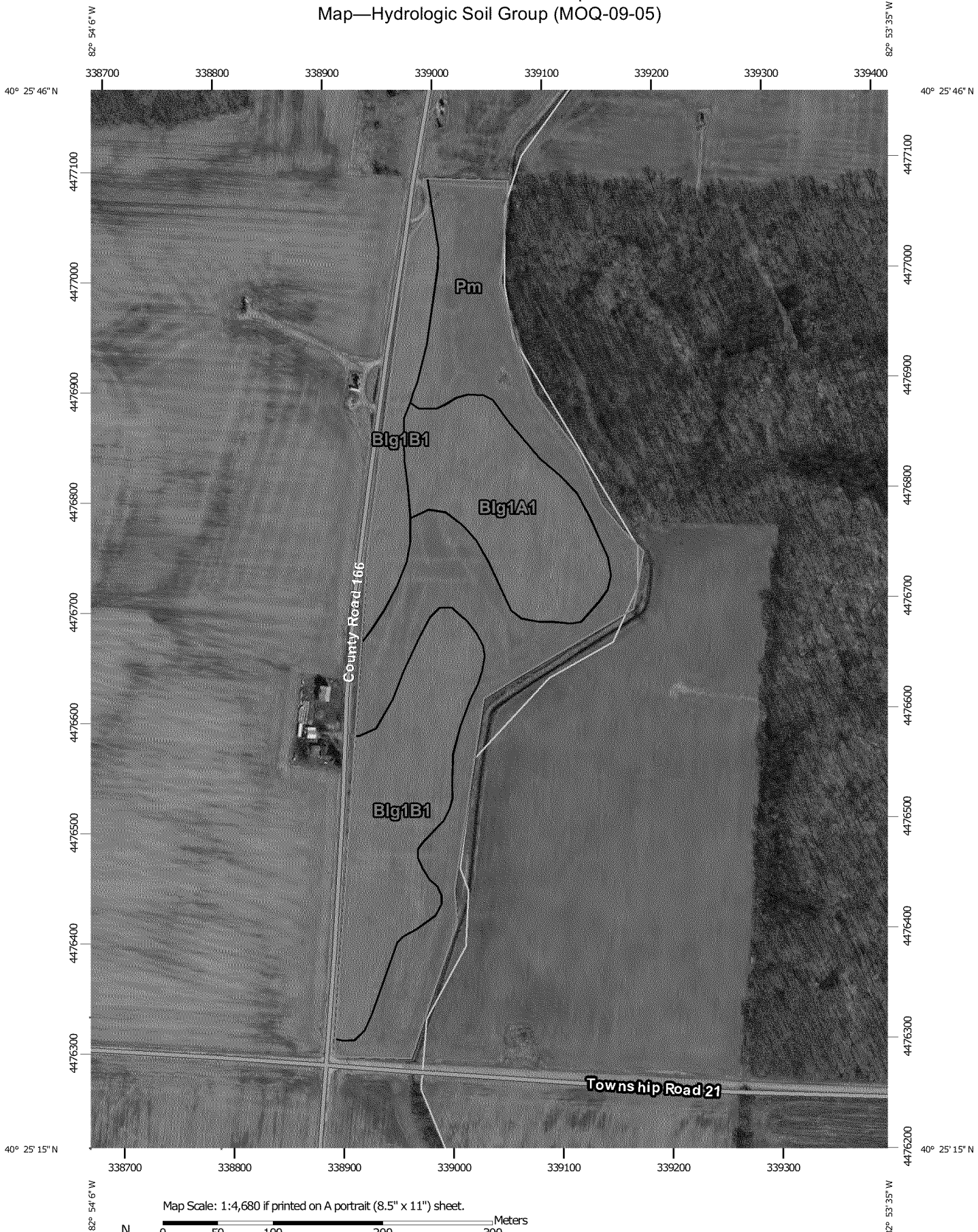
The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Custom Soil Resource Report
Map—Hydrologic Soil Group (MOQ-09-05)



Map Scale: 1:4,680 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

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This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Morrow County, Ohio
Survey Area Data: Version 13, Sep 19, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 5, 2011—Mar 10, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydrologic Soil Group (MOQ-09-05)

Hydrologic Soil Group— Summary by Map Unit — Morrow County, Ohio (OH117)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
Blg1A1	Blount silt loam, ground moraine, 0 to 2 percent slopes	D	5.6	21.2%
Blg1B1	Blount silt loam, ground moraine, 2 to 4 percent slopes	D	8.9	33.9%
Pm	Pewamo silty clay loam	C/D	11.8	44.9%
Totals for Area of Interest			**26.3**	**100.0%**

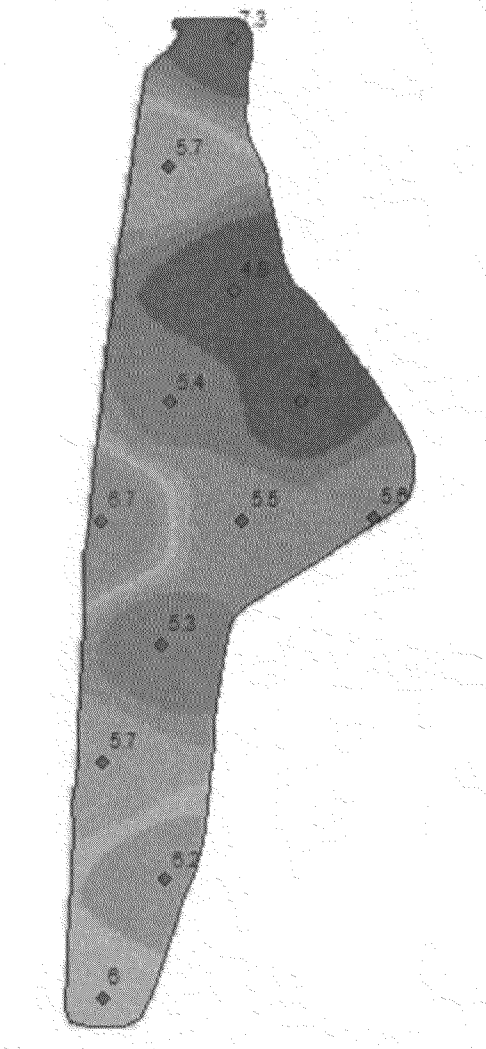
Rating Options—Hydrologic Soil Group (MOQ-09-05)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

21 & 166 -
Soil Test pH (Water, 1:1)



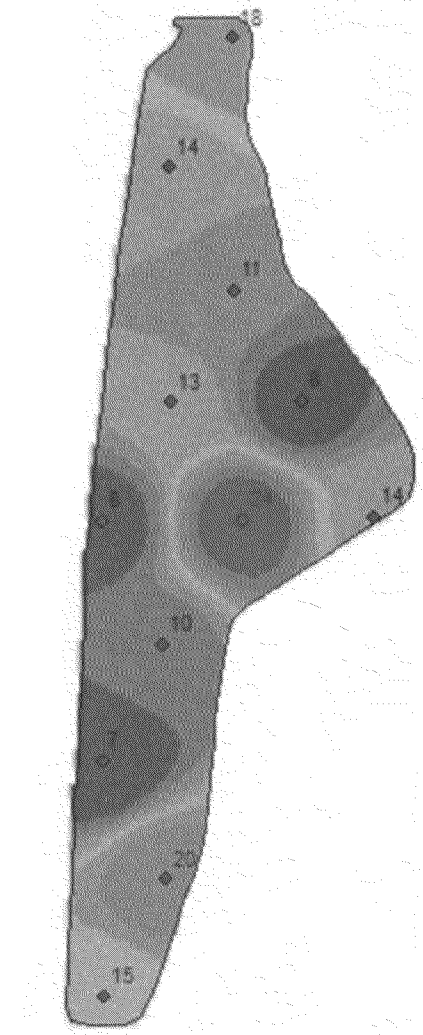
Customer: Loyde Parsons
Address: 2037 Twp Rd 166
Ashley, OH 43003
Boundary Area: 25.36 (ac)
Min: 4.8 (pH)
Avg: 5.6 (pH)
Max: 7.3 (pH)
Std. Dev: 0.5 (pH)
Sample Depth: 0 (in) - 6 (in)
Start Date: 11/7/2012 9:12:00 AM
End Date: 11/7/2012 9:12:00 AM

pH	ac	%
4.8 - 5.1	4.66	17.94
5.1 - 5.4	5.27	20.30
5.4 - 5.6	5.03	19.37
5.6 - 5.8	3.97	15.30
5.8 - 6.1	2.56	9.84
6.1 - 6.4	2.20	8.47
6.4 - 6.8	1.26	4.84
6.8 - 7.1	0.22	0.83
7.1 - 7.3	0.81	3.10

pH Water 1:1
Field Boundary

OHIGRO Inc.
Ohigro Inc.-Waldo
6720 Gillette Rd
Waldo, Ohio 43356
740-726-2429

21 & 166 -
Soil Test Phosphorus (Bray P-1, 1:1)



Customer: Loyde Parsons
Address: 2037 Twp Rd 166
Ashley, OH 43003
Boundary Area: 25.36 (ac)
Min: 7 (lb/ac)
Avg: 13 (lb/ac)
Max: 24 (lb/ac)
Std. Dev: 4 (lb/ac)
Sample Depth: 0 (in) - 6 (in)
Start Date: 11/7/2012 9:12:00 AM
End Date: 11/7/2012 9:12:00 AM

lb/ac	ac	%
7 - 9	4.03	15.52
9 - 11	4.11	15.81
11 - 12	4.10	15.78
12 - 14	5.65	21.73
14 - 16	2.50	9.63
16 - 19	2.24	8.62
19 - 21	1.68	6.45
21 - 23	0.60	2.30
23 - 24	1.08	4.16

P Bray1
Field Boundary

OHIGRO Inc.
Ohigro Inc.-Waldo
6720 Gillette Rd
Waldo, Ohio 43356
740-726-2429

Division of Surface Water
Application for Authorization
Class B Beneficial Use Sites

Form BUA-4 Page 1 of 2

Beneficial Use Site Information

Ohio EPA Site I.D. (Ohio EPA Use Only)

Field site I.D.: MOQ-09-06	
Beneficial use site location: N side of Prospect Mt. Vernon Rd, 0.15 miles E of Pompey Rd.	
County: Morrow	Township: Peru
Latitude: 40°25'24.34"N	Longitude: 82°53'45.51"W

Total acreage proposed for beneficial use: 26.7	
Soil pH (s.u.): 6.1	Soil phosphorus (mg/kg): 20.5 Bray Kurtz P1 ■ Mehlich 3 □
Bedrock depth (feet): >3ft	

Type of crops to be grown:

Crop Type	Expected Yield
Corn	185 bu
Soybeans	60 bu
Wheat	
Pasture	
Hay	
Other:	

Soil Types:

Soil Unit Symbol	Soil Unit Name	Hydrologic Soil Group
Blg1A1	Bount silt loam, ground moraine, 0 to 2 percent slopes	D
Blg1B1	Bount silt loam, ground moraine, 2 to 4 percent slopes	D
Gwg1B1	Glynwood silt loam, ground moraine, 2 to 6 percent slopes	D
Pm	Pewamo silty clay loam	C/D

Are any endangered species or endangered species habitats located on the beneficial use site?

☐ Yes	■ No

If "Yes" is marked, list the types of endangered species or endangered species habitat:

Have biosolids been beneficially used on the site since July 20, 1993?

☐ Yes	■ No

If "Yes" is marked, list the biosolids generators and years beneficial use occurred:

Generator	Year of Beneficial Use

The application must also include all of the following.

- ■ A soil map of the proposed beneficial use site.
- ■ An aerial map of the proposed beneficial use site that clearly identifies the entrance of the beneficial use site from the nearest road and all applicable isolation distances as established in Chapter 3745-40 of the Ohio Administrative Code.
- ■ A vicinity road map at or near the township level that clearly identifies the proposed beneficial use site with all roads labeled.

quasar energy group

Parsons MOQ-09-06
Total Acreage: 26.7 acres

N

0 150 300 600 Feet

Residences
Waterways
100ft Res Buffer
33ft Water Buffer
300ft Res Buffer

ED_014244_00001029-00106

quasar energy group

Parsons MOQ-09-06
Total Acreage: 26.7 acres

N

0 150 300 600 Feet

5ft Contours

ED_014244_00001029-00107

Custom Soil Resource Report
Soil Map

Map Scale: 1:2,950 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 40 80 160 240

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

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Survey Area Data: Version 13, Sep 19, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 5, 2011—Mar 10, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Morrow County, Ohio (OH117)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
Blg1A1	Blount silt loam, ground moraine, 0 to 2 percent slopes	4.1	14.8%
Blg1B1	Blount silt loam, ground moraine, 2 to 4 percent slopes	15.5	56.3%
Gwg1B1	Glynwood silt loam, ground moraine, 2 to 6 percent slopes	1.0	3.5%
Pm	Pewamo silty clay loam	7.0	25.4%
Totals for Area of Interest		**27.4**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that

Morrow County, Ohio

BlgA1—Blount silt loam, ground moraine, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2skcv
Elevation: 700 to 1,300 feet
Mean annual precipitation: 34 to 42 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 140 to 180 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Blount, ground moraine, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Blount, Ground Moraine

Setting

Landform: Ground moraines on till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Wisconsin till derived from limestone and shale

Typical profile

Ap - 0 to 10 inches: silt loam
Bt - 10 to 33 inches: silty clay
BC - 33 to 39 inches: clay loam
Cd - 39 to 79 inches: clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 31 to 54 inches to densic material
Natural drainage class: Somewhat poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.20 in/hr)
Depth to water table: About 6 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 35 percent
Salinity, maximum in profile: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: D

Minor Components

Pewamo, ground moraine

Percent of map unit: 9 percent

Landform: Ground moraines on till plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave, linear

Glynwood, ground moraine
Percent of map unit: 6 percent
Landform: Ground moraines on till plains
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Linear

Blg1B1—Blount silt loam, ground moraine, 2 to 4 percent slopes

Map Unit Setting
National map unit symbol: 2s1j6
Elevation: 700 to 1,300 feet
Mean annual precipitation: 34 to 42 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 140 to 180 days
Farmland classification: Prime farmland if drained

Map Unit Composition
Blount, ground moraine, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Blount, Ground Moraine

Setting
Landform: Ground moraines on till plains
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Wisconsin till derived from limestone and shale

Typical profile
Ap - 0 to 9 inches: silt loam
Bt - 9 to 32 inches: silty clay
BC - 32 to 37 inches: clay loam
Cd - 37 to 79 inches: clay loam

Properties and qualities
Slope: 2 to 4 percent
Depth to restrictive feature: 30 to 54 inches to densic material
Natural drainage class: Somewhat poorly drained
Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.20 in/hr)
Depth to water table: About 6 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 35 percent
Salinity, maximum in profile: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 5.6 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: D

Minor Components

Pewamo, ground moraine
Percent of map unit: 9 percent
Landform: Ground moraines on till plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave

Glynwood, ground moraine
Percent of map unit: 6 percent
Landform: Ground moraines on till plains
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Linear

Gwg1B1—Glynwood silt loam, ground moraine, 2 to 6 percent slopes

Map Unit Setting
National map unit symbol: 2v4bl
Elevation: 700 to 1,300 feet
Mean annual precipitation: 34 to 42 inches
Mean annual air temperature: 48 to 54 degrees F
Frost-free period: 140 to 180 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Glynwood, ground moraine, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Glynwood, Ground Moraine

Setting
Landform: Ground moraines on till plains

Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Parent material: Wisconsin till derived from limestone and shale

Typical profile

Ap - 0 to 9 inches: silt loam
Bt - 9 to 29 inches: clay
BC - 29 to 34 inches: clay loam
Cd - 34 to 79 inches: clay loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: 28 to 45 inches to densic material
Natural drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.20 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 35 percent
Salinity, maximum in profile: Nonsaline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 5.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: D

Minor Components

Blount, ground moraine

Percent of map unit: 9 percent
Landform: Ground moraines on till plains
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear, convex
Across-slope shape: Linear

Pewamo

Percent of map unit: 6 percent
Landform: Ground moraines on till plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave

Pm—Pewamo silty clay loam

Map Unit Setting

National map unit symbol: 5q8m
Elevation: 600 to 1,400 feet
Mean annual precipitation: 29 to 42 inches
Mean annual air temperature: 46 to 55 degrees F
Frost-free period: 130 to 180 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Pewamo and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pewamo

Setting

Landform: Depressions, drainageways
Parent material: Till

Typical profile

H1 - 0 to 15 inches: silty clay loam
H2 - 15 to 66 inches: silty clay loam
H3 - 66 to 80 inches: clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum in profile: 30 percent
Available water storage in profile: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D

Minor Components

Sloan

Percent of map unit: 3 percent
Landform: Flood plains

Condit

Percent of map unit: 3 percent
Landform: Depressions on ground moraines
Down-slope shape: Concave
Across-slope shape: Concave

Carlisle

Percent of map unit: 3 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave

Bennington

Percent of map unit: 3 percent
Landform: Rises on ground moraines, rises on end moraines, flats on ground moraines, flats on end moraines
Landform position (two-dimensional): Summit, shoulder
Down-slope shape: Linear
Across-slope shape: Linear

Blount

Percent of map unit: 3 percent
Landform: Flats on ground moraines, flats on end moraines, rises on ground moraines, rises on end moraines
Landform position (two-dimensional): Summit, shoulder
Down-slope shape: Linear
Across-slope shape: Linear

More sand and less clay in the subsoil

Percent of map unit:
Landform: Depressions, drainageways

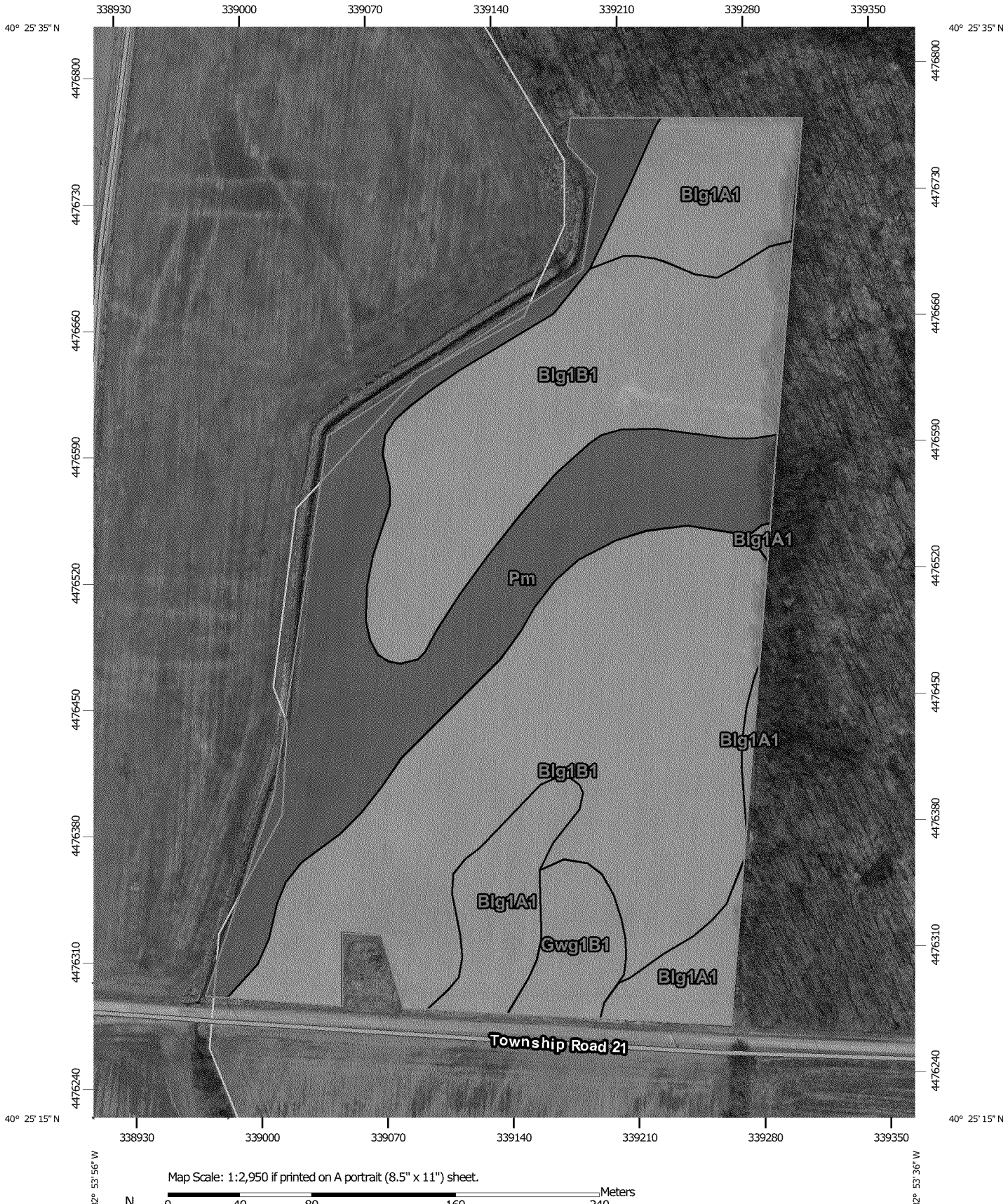
Thinner or lighter colored surface layer

Percent of map unit:
Landform: Depressions, drainageways

Slopes of 3 or 4 percent

Percent of map unit:
Landform: Depressions, drainageways

Custom Soil Resource Report
Map—Depth to Any Soil Restrictive Layer (MOQ-09-06)



Map Scale: 1:2,950 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Soil Rating Lines
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Soil Rating Points
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Morrow County, Ohio
Survey Area Data: Version 13, Sep 19, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 5, 2011—Mar 10, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Depth to Any Soil Restrictive Layer (MOQ-09-06)

Depth to Any Soil Restrictive Layer— Summary by Map Unit — Morrow County, Ohio (OH117)				
Map unit symbol	**Map unit name**	**Rating (centimeters)**	**Acres in AOI**	**Percent of AOI**
Blg1A1	Blount silt loam, ground moraine, 0 to 2 percent slopes	99	4.1	14.8%
Blg1B1	Blount silt loam, ground moraine, 2 to 4 percent slopes	94	15.5	56.3%
Gwg1B1	Glynwood silt loam, ground moraine, 2 to 6 percent slopes	86	1.0	3.5%
Pm	Pewamo silty clay loam	>200	7.0	25.4%
Totals for Area of Interest			**27.4**	**100.0%**

Rating Options—Depth to Any Soil Restrictive Layer (MOQ-09-06)

Units of Measure: centimeters

Aggregation Method: Dominant Component

Component Percent Cutoff: *None Specified*

Tie-break Rule: Lower

Interpret Nulls as Zero: No

Hydrologic Soil Group (MOQ-09-06)

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Morrow County, Ohio
Survey Area Data: Version 13, Sep 19, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 5, 2011—Mar 10, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydrologic Soil Group (MOQ-09-06)

Hydrologic Soil Group— Summary by Map Unit — Morrow County, Ohio (OH117)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
Blg1A1	Blount silt loam, ground moraine, 0 to 2 percent slopes	D	4.1	14.8%
Blg1B1	Blount silt loam, ground moraine, 2 to 4 percent slopes	D	15.5	56.3%
Gwg1B1	Glynwood silt loam, ground moraine, 2 to 6 percent slopes	D	1.0	3.5%
Pm	Pewamo silty clay loam	C/D	7.0	25.4%
Totals for Area of Interest			**27.4**	**100.0%**

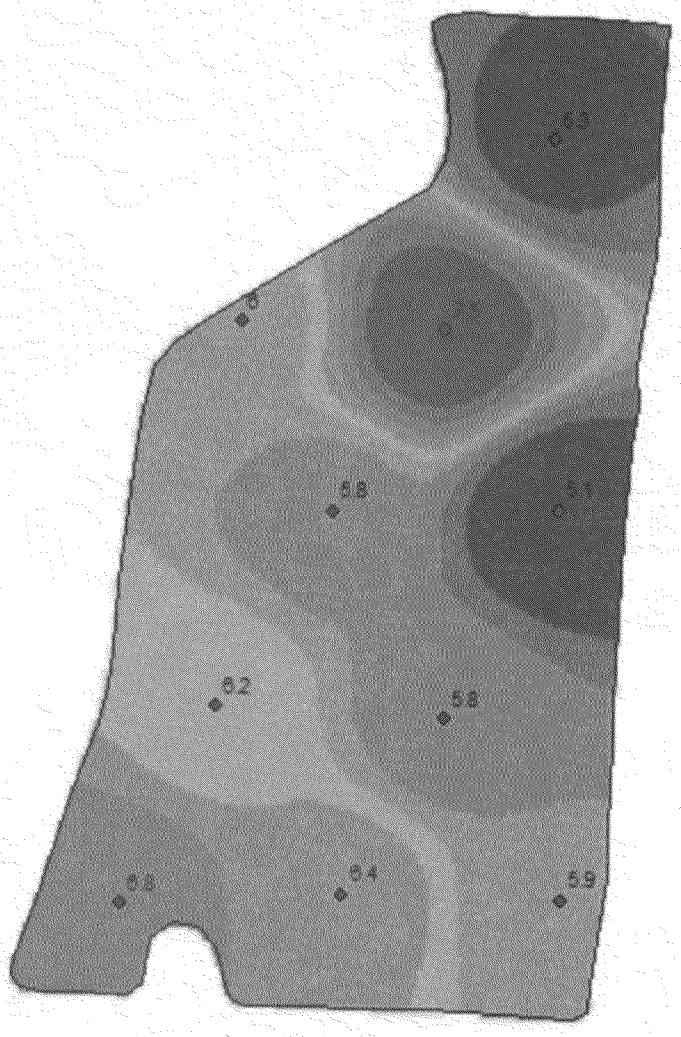
Rating Options—Hydrologic Soil Group (MOQ-09-06)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

21 & 166 -
Soil Test pH (Water, 1:1)



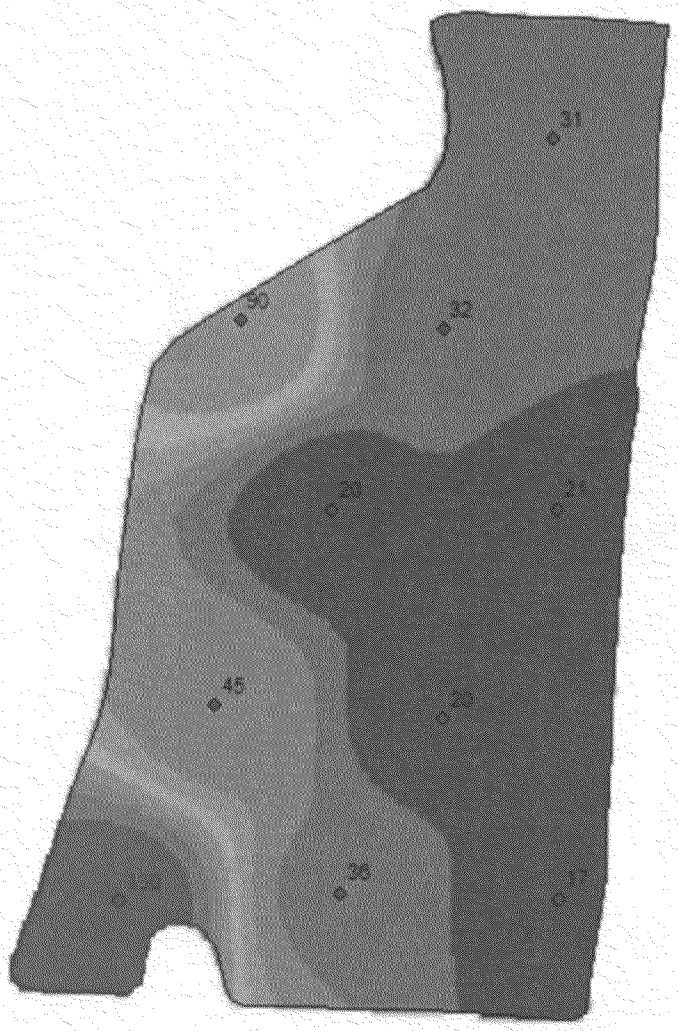
Customer: Loyde Parsons
Address: 2037 Twp Rd 166
Ashley, OH 43003
Boundary Area: 25.81 (ac)
Min: 5.1 (pH)
Avg: 6.1 (pH)
Max: 7.5 (pH)
Std. Dev: 0.6 (pH)
Sample Depth: 0 (in) - 6 (in)
Start Date: 11/7/2012 9:11:00 AM
End Date: 11/7/2012 9:11:00 AM

pH	ac	%
5.1 - 5.4	3.53	13.53
5.4 - 5.6	1.61	6.18
5.6 - 5.9	4.85	18.56
5.9 - 6.1	5.02	19.21
6.1 - 6.3	3.59	13.73
6.3 - 6.6	3.17	12.15
6.6 - 6.9	2.47	9.46
6.9 - 7.3	0.66	2.54
7.3 - 7.5	1.21	4.64

◆ pH Water 1:1
Field Boundary

OHIGRO Inc.
Ohigro Inc.-Waldo
6720 Gillette Rd
Waldo, Ohio 43356
740-726-2429

21 & 166 -
Soil Test Phosphorus (Bray P-1, 1:1)



0 171 341 512 682 ft

Customer: Loyde Parsons
Address: 2037 Twp Rd 166
Ashley, OH 43003
Boundary Area: 25.81 (ac)
Min: 17 (lb/ac)
Avg: 41 (lb/ac)
Max: 130 (lb/ac)
Std. Dev: 28 (lb/ac)
Sample Depth: 0 (in) - 6 (in)
Start Date: 11/7/2012 9:11:00 AM
End Date: 11/7/2012 9:11:00 AM

lb/ac	ac	%
17 - 26	9.17	35.12
26 - 38	8.92	34.15
38 - 50	3.43	13.13
50 - 64	0.86	3.29
64 - 80	0.71	2.72
80 - 94	1.19	4.56
94 - 109	0.20	0.76
109 - 122	0.25	0.97
122 - 130	1.39	5.30
P Bray1		
Field Boundary		

OHIGRO Inc.
Ohigro Inc.-Waldo
6720 Gillette Rd
Waldo, Ohio 43356
740-726-2429